INEEL OU 1-10 Site TSF-09, Tank V-3
Preliminary Liquid Phase Chemical Characterization Summary

- The liquid phase of the waste associated with this tank is considered a wastewater for purposes of complying with the Land Disposal Restrictions, in that it contains <1% TOC and <1% TSS. This determination as well as the hazardous waste determination listed below is preliminary based on existing analytical data.

- **Hazardous Waste Determination:** Highest concentrations detected in the waste are reported.

The RCRA Waste codes that apply to this waste are as follows:

Constituent	Concentration Detected in Waste (mg/L)	Regulatory Limit (mg/L)	Applicable Waste Code	LDR Treatment Standard for wastewater (mg/L)
Chloromethane	0.01	0.19	UHC	0.19
2,4-Dinitrotoluene	ND @ 1	0.13	D030	0.32
Hexachlorobenzene	ND @ 1	0.13	D032	0.055
Hexachlorobutadiene	ND @ 1	0.5	D033	0.055
Trichloroethene	0.2	0.5 mg/L as D040, None if F-listed, or 0.054 as a UHC	F001	0.054

- UHC = Underlying Hazardous Constituent
  ND = Not Detected
- Based on a review of the inorganic analysis, antimony is the only constituent, which appears to require re-analysis, since the data was rejected during data validation and determined to be unusable. Since antimony is only regulated as an underlying hazardous constituent, re-analysis is not required since this waste does not exhibit a characteristic of a hazardous waste, triggering the requirement to treat for underlying hazardous constituents.
- Based on a review of the volatile organic analysis, chloromethane is the only constituent, which appears to require re-analysis, since the data was rejected during data validation and determined to be unusable. Therefore, chloromethane is assumed to be present at the detection limit value and identified as an underlying hazardous constituent.
- The detection limits for a majority of the SVOCs, except for bis(2-ethylhexyl) phthalate and pyrene, were above the wastewater treatment standards. However, since this waste will not be re-analyzed for these constituents, the following SVOCs are also assumed to be present in the waste at the detection limit value (see attached tables for concentrations) and are identified as underlying hazardous constituents: Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene,

Benzo(b)fluoranthene, Benzo(g,h,I)perylene, Benzo(k)fluoranthene, Butylbenzylphthalate, Bis (2-chloroethoxy) methane, Bis (2-chloroethyl) ether, Bis (2-chloroisopropyl) ether, 4-Bromophenyl-phenylether, Chrysene, 4-Chloroaniline, 4-Chloro-3-Methylphenol, 2-Chloronaphthalene, 2-Chlorophenol, Dibenz(a,h)anthracene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 3,3-Dichlorobenzidine, 2,4-Dichlorophenol, Diethylphthalate, 2,4-Dimethylphthalate, Dimethylphthalate, Di-n-butylphthalate, Di-n-octylphthalate, 2,4-Dinitrophenol, 2,6-Dinitrotoluene, Fluoranthene, Fluorene, Hexachlorocyclopentadiene, Hexachloroethane, Indeno(1,2,3-cd) pyrene, 2-Methylphenol, 4-Methylphenol, Napthalene, 2-Nitroaniline, 4-Nitroaniline, Nitrobenzene, 2-Nitrophenol, 4-Nitrophenol, N-nitroso-dimethylamine, N-nitroso-di-n-propylamine, N-nitrosodiphenylamine, Pentachlorophenol, Phenanthrene, Phenol, Pyrene, Pyridine, 1,2,4-Trichlorobenzene, 2,4,5-Trichlorophenol, and2,4,6-Trichlorophenol..Three of the SVOC constituents (2,4-Dinitrotoluene, Hexachlorobenzene, and Hexachlorobutadiene) also had detection limit above the toxicity characteristic levels. LDR guidance suggests that in cases where detection limits are above either the characteristic limit or treatment standards, the generator may use his knowledge of the waste, in lieu of analytical results, to certify that the constituent(s) are not present in the wasteHowever, this waste will not be re-analyzed for 2,4-Dinitrotoluene, Hexachlorobenzene, and Hexachlorobutadiene, and it is assumed that these constituents are present at the detection limit value (as identified above)..

- Based on a review of the analytical data provided by INEEL, this waste is considered a hazardous waste based on the presence of Trichloroethene as an F-listed constituent,and as a characteristic waste, which must be treatment to meet the land disposal restrictions.

- **Recommendation:**

If this waste will not be treated on-site, the waste acceptance criteria of possible off-site treatment facilities should also be considered.

INEEL V-3 Liquids, VOC Analysis

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Acetone	U (0.015) J	Treatment standard limit if UHC	UHC	0.28	160	
Benzene	U (0.01) J	0.5 mg/l (D018) or treatment standard limit if UHC	D018 or UHC	0.14	10	
Bromodichloromethane	U (0.01) J	Treatment standard limit if UHC	UHC	0.35	15	
Bromoform (Tribromomethane)	U (0.01) J	Treatment standard limit if UHC	UHC	0.63	15	
Bromomethane	U (0.01) J	Treatment standard limit if UHC	UHC	0.11	15	
2-Butanone (MEK)	U (0.01) J	200 mg/l (D035) or treatment standard limit if UHC	D035 or UHC	0.28	36	
Carbon disulfide	U (0.01) J	Treatment standard limit if UHC	UHC	3.8	4.8 mg/l	
Carbon tetrachloride	U (0.01) J	Treatment standard limit if UHC	UHC	0.057	6	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
R = Result rejected during validation and unusable.

INEEL V-3 Liquids, VOC Analysis

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Chlorobenzene	U (0.01) J	100 mg/l (D021) or treatment standard limit if UHC	D021 or UHC	0.057	6	
Chloroethane	U (0.01) J	Treatment standard limit if UHC	UHC	0.27	6	
Chloroform	U (0.01) J	6 mg/l (D022) or treatment standard limit if UHC	D022 or UHC	0.046	6	
Chloromethane	0.01 R	Treatment standard limit if UHC	UHC	0.19	30	Since this value was rejected, it will have to be re-analyzed to determine concentration in the waste.
Dibromochloromethane (Chlorodibromomethane)	U (0.01) J	Treatment standard limit if UHC	UHC	0.057	15	
1,1-Dichloroethane	0.019 J	Treatment standard limit if UHC	UHC	0.059	6	
1,2-Dichloroethane	U (0.01) J	0.5 mg/l (D028), or treatment standard limit if UHC	D028 or UHC	0.21	6	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
R = Result rejected during validation and unusable.

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INEEL V-3 Liquids, VOC Analysis

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
1,1-Dichloroethene	U (0.01) J	0.7 mg/l (D029) or treatment standard limit if UHC	D029 or UHC	0.025	6	
1,2-Dichloroethene (total)	**0.2**	**Treatment standard limit if UHC**	**UHC**	**0.054**	**30**	**The 0.2 mg/L concentration exceeds the ww treatment standards and may be a UHC.**
1,2-Dichloropropane	U (0.01) J	Treatment standard limit if UHC	UHC	0.85	18	
cis-1,3-Dichloropropene	U (0.01) J	Treatment standard limit if UHC	UHC	0.036	18	
trans-1,3-Dichloropropene	U (0.01) J	Treatment standard limit if UHC	UHC	0.036	18	
Ethylbenzene	U (0.01) J	Treatment standard limit if UHC	UHC	0.057	10	
2-Hexanone (Methyl n-butyl ketone)	U (0.01) J	NA	NA	NA	NA	
4-Methyl-2-pentanone (MIK)	U (0.01) J	Treatment standard limit if UHC	UHC	0.14	33	
Methylene chloride	U (0.01) J	Treatment standard limit if UHC	UHC	0.089	30	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
R = Result rejected during validation and unusable.

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INEEL V-3 Liquids, VOC Analysis

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Styrene	U (0.01) J	NA	NA	NA	NA	
1,1,2,2-Tetrachloroethane	U (0.01) J	Treatment standard limit if UHC	UHC	0.057	6	
Tetrachloroethene	U (0.01) J	0.7 mg/l (D039) or treatment standard limit if UHC	D039 or UHC	0.056	6	
Toluene	U (0.01) J	Treatment standard limit if UHC	UHC	0.08	10	
1,1,1-Trichloroethane	U (0.01) J	Treatment standard limit if UHC	UHC	0.054	6	
1,1,2-Trichloroethane	U (0.01) J	Treatment standard limit if UHC	UHC	0.054	6	
Trichloroethene	**0.2**	**None if listed**	**F001**	**0.054**	**6**	**0.2 mg/L is below the characteristic limit, but exceeds the wastewater treatment standard. Therefore it may be F-listed or a UHC.**
Vinyl chloride	0.011 J	0.2 mg/l (D043), orTreatment standard limit if UHC	D043 or UHC	0.27	6	
Xylene (ortho)	U (0.01) J	NA	NA	NA	NA	

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INEEL V-3 Liquids, VOC Analysis

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Xylene (total meta and para)	U (0.01) J	Treatment standard limit if UHC	UHC	0.32	30	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
R = Result rejected during validation and unusable.

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INEEL V-3 Liquids, SVOC Analysis

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Acenaphthene	U (1)	UHC Treatment Standard	UHC	0.059	3.4	1 mg/L detection limits exceed the wastewater treatment standard.
Acenaphthylene	U (1)	UHC Treatment Standard	UHC	0.059	3.4	1 mg/L detection limits exceed the wastewater treatment standard.
Anthracene	U (1)	UHC Treatment Standard	UHC	0.059	3.4	1 mg/L detection limits exceed the wastewater treatment standard.
Benzo (a) anthracene	U (1)	UHC Treatment Standard	UHC	0.059	3.4	1 mg/L detection limits exceed the wastewater treatment standard.
Benzo (a) pyrene	U (1)	UHC Treatment Standard	UHC	0.061	3.4	1 mg/L detection limits exceed the wastewater treatment standard.
Benzo (b) fluoranthene	U (1)	UHC Treatment Standard	UHC	0.11	6.8	1 mg/L detection limits exceed the wastewater treatment standard.
Benzo (g,h,I) perylene	U (1)	UHC Treatment Standard	UHC	0.0055	1.8	1 mg/L detection limits exceed the wastewater treatment standard.
Benzo (k) fluoranthene	U (1)	UHC Treatment Standard	UHC	0.11	6.8	1 mg/L detection limits exceed the wastewater treatment standard.
Benzoic acid	U (5)	None	NA	NA	NA	
Benzyl alcohol	U (1)	None	NA	NA	NA	
Butylbenzylphthalate	U (1)	UHC Treatment Standard	UHC	0.017	28	1 mg/L detection limits exceed the wastewater treatment standard.
Bis (2-chloroethoxy)methane	U (1)	UHC Treatment Standard	UHC	0.036	7.2	1 mg/L detection limits exceed the wastewater treatment standard.
Bis (2-chloroethyl)ether	U (1)	UHC Treatment Standard	UHC	0.033	6	1 mg/L detection limits exceed the wastewater treatment standard.
Bis (2-chloroisopropyl) ether	U (1)	UHC Treatment Standard	UHC	0.055	7.2	1 mg/L detection limits exceed the wastewater treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

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INEEL V-3 Liquids, SVOC Analysis

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Bis (2-ethylhexyl) phthalate	0.1 J	UHC Treatment Standard	UHC	0.28	28	Concentration is below both treatment standards, therefore it is not a UHC.
4-Bromophenyl-phenylether	U (1)	UHC Treatment Standard	UHC	0.055	15	1 mg/L detection limits exceed the wastewater treatment standard.
Carbozole (or Carbazole)	U (1)	None	NA	NA	NA	
Chrysene	U (1)	UHC Treatment Standard	UHC	0.059	3.4	1 mg/L detection limits exceed the wastewater treatment standard.
4-Chloroaniline (p-chloroaniline)	U (1)	UHC Treatment Standard	UHC	0.46	16	1 mg/L detection limits exceed the wastewater treatment standard.
4-Chloro-3-Methylphenol (p-chloro-m-cresol)	U (1)	UHC Treatment Standard	UHC	0.018	14	1 mg/L detection limits exceed the wastewater treatment standard.
2-Chloronaphthalene	U (1)	UHC Treatment Standard	UHC	0.055	5.6	1 mg/L detection limits exceed the wastewater treatment standard.
4-Chlorophenyl-phenylether	U (1)	None	NA	NA	NA	
2-Chlorophenol	U (1)	UHC Treatment Standard	UHC	0.044	5.7	1 mg/L detection limits exceed the wastewater treatment standard.
Dibenz(a,h)anthracene	U (1)	UHC Treatment Standard	UHC	0.055	8.2	1 mg/L detection limits exceed the wastewater treatment standard.
Dibenzofuran	U (1)	None	NA	NA	NA	
1,2-Dichlorobenzene (o-dichlorobenzene)	U (1)	UHC Treatment Standard	UHC	0.088	6	1 mg/L detection limits exceed the wastewater treatment standard.
1,3-Dichlorobenzene (m-dichlorobenzene)	U (1)	UHC Treatment Standard	UHC	0.036	6	1 mg/L detection limits exceed the wastewater treatment standard.
1,4-Dichlorobenzene (p-dichlorobenzene)	U (1)	7.5 (D027), UHC Treatment Standard	D027, UHC	0.09	6	1 mg/L detection limits exceed the wastewater treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

INEEL V-3 Liquids, SVOC Analysis

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
3,3-Dichlorobenzidine (Dibenz (a,h) anthracene)	U (1)	UHC Treatment Standard	UHC	0.055	8.2	1 mg/L detection limits exceed the wastewater treatment standard.
2,4-Dichlorophenol	U (1)	UHC Treatment Standard	UHC	0.044	14	1 mg/L detection limits exceed the wastewater treatment standard.
Diethylphthalate	U (1)	UHC Treatment Standard	UHC	0.2	28	1 mg/L detection limits exceed the wastewater treatment standard.
2,4-Dimethylphenol	U (1)	UHC Treatment Standard	UHC	0.036	14	1 mg/L detection limits exceed the wastewater treatment standard.
Dimethylphthalate	U (1)	UHC Treatment Standard	UHC	0.047	28	1 mg/L detection limits exceed the wastewater treatment standard.
Di-n-butylphthalate	U (1)	UHC Treatment Standard	UHC	0.057	28	1 mg/L detection limits exceed the wastewater treatment standard.
Di-n-octylphthalate	U (1)	UHC Treatment Standard	UHC	0.017	28	1 mg/L detection limits exceed the wastewater treatment standard.
4,6-Dinitro-2-methylphenol	U (5)	None	NA	NA	NA	
2,4-Dinitrophenol	U (5)	UHC Treatment Standard	UHC	0.12	160	5 mg/L detection limits exceed the wastewater treatment standard.
2,4-Dinitrotoluene	U (1)	0.13 mg/L (D030), UHC Treatment Standard	D030, UHC	0.32	140	1 mg/L detection limits exceed the wastewater treatment standard.
2,6-Dinitrotoluene	U (1)	UHC Treatment Standard	UHC	0.55	28	1 mg/L detection limits exceed the wastewater treatment standard.
Fluoranthene	U (1)	UHC Treatment Standard	UHC	0.068	3.4	1 mg/L detection limits exceed the wastewater treatment standard.
Fluorene	U (1)	UHC Treatment Standard	UHC	0.059	3.4	1 mg/L detection limits exceed the wastewater treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

INEEL V-3 Liquids, SVOC Analysis

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Hexachlorobenzene	U (1)	0.13 (D032), UHC Treatment Standard	D032, UHC	0.055	10	1 mg/L detection limits exceed the wastewater treatment standard.
Hexachlorobutadiene (Hexachloro-1,3-butadiene	U (1)	0.5 (D033)UHC Treatment Standard	D033, UHC	0.055	5.6	1 mg/L detection limits exceed the wastewater treatment standard.
Hexachlorocyclopentadiene	U (1)	UHC Treatment Standard	UHC	0.057	2.4	1 mg/L detection limits exceed the wastewater treatment standard.
Hexachloroethane	U (1)	3.0 mg/L (D034), UHC Treatment Standard	D034, UHC	0.055	30	1 mg/L detection limits exceed the wastewater treatment standard.
Indeno (1,2,3-cd) pyrene	U (1)	UHC Treatment Standard	UHC	0.0055	3.4	1 mg/L detection limits exceed the wastewater treatment standard.
Isophorone	U (1)	None	NA	NA	NA	
2-Methylnaphthalene	U (1)	None	NA	NA	NA	
2-Methylphenol (o-cresol)	U (1)	200 mg/L, UHC Treatment Standard	D023, UHC	0.11	5.6	1 mg/L detection limits exceed the wastewater treatment standard.
4-Methylphenol (p-cresol)	U (1)	200 mg/L, UHC Treatment Standard	D025, UHC	0.77	5.6	1 mg/L detection limits exceed the wastewater treatment standard.
Naphthalene	U (1)	UHC Treatment Standard	UHC	0.059	5.6	1 mg/L detection limits exceed the wastewater treatment standard.
2-Nitroaniline (o-nitroaniline)	U (5)	UHC Treatment Standard	UHC	0.27	14	5 mg/L detection limits exceed the wastewater treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

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INEEL V-3 Liquids, SVOC Analysis

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
3-Nitroaniline (m-nitroaniline)	U (5)	None	NA	NA	NA	
4-Nitroaniline (p-nitroaniline)	U (5)	UHC Treatment Standard	UHC	0.028	28	5 mg/L detection limits exceed the wastewater treatment standard.
Nitrobenzene	U (1)	2.0 (D036) or UHC Treatment Standard	D036 or UHC	0.068	14	1 mg/L detection limits exceed the wastewater treatment standard.
2-Nitrophenol (o-nitrophenol)	U (1)	UHC Treatment Standard	UHC	0.028	13	1 mg/L detection limits exceed the wastewater treatment standard.
4-Nitrophenol (p-nitrophenol)	U (5)	UHC Treatment Standard	UHC	0.12	29	5 mg/L detection limits exceed the wastewater treatment standard.
N-nitroso-di-n-propylamine (Di-n-propylnitrosamine)	U (1)	UHC Treatment Standard	UHC	0.4	14	1 mg/L detection limits exceed the wastewater treatment standard.
N-nitrosodiphenylamine (Diphenylnitrosamine)	U (1)	UHC Treatment Standard	UHC	0.92	13	1 mg/L detection limits exceed the wastewater treatment standard.
Pentachlorophenol	U (5)	100 mg/L (D037), UHC Treatment Standard	D037, UHC	0.089	7.4	5 mg/L detection limits exceed the wastewater treatment standard.
Phenanthrene	U (1)	UHC Treatment Standard	UHC	0.059	5.6	1 mg/L detection limits exceed the wastewater treatment standard.
Phenol	U (1)	UHC Treatment Standard	UHC	0.039	6.2	1 mg/L detection limits exceed the wastewater treatment standard.
Pyrene	0.063 J	UHC Treatment Standard	UHC	0.067	8.2	0.063 mg/L concentration is below the wastewater treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

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INEEL V-3 Liquids, SVOC Analysis

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Pyridine	U (1)	5.0 (D038) or UHC Treatment Standard	D038 or UHC	0.014	16	1 mg/L detection limits exceed the wastewater treatment standard.
1,2,4-Trichlorobenzene	U (1)	UHC Treatment Standard	UHC	0.055	19	1 mg/L detection limits exceed the wastewater treatment standard.
2,4,5-Trichorophenol	U (5)	44 (D041), UHC Treatment Standard	D041, UHC	0.18	7.4	5 mg/L detection limits exceed the wastewater treatment standard.
2,4,6-Trichlorophenol	U (1)	2 (D042), UHC Treatment Standard	D042, UHC	0.035	7.4	1 mg/L detection limits exceed the wastewater treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

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INEEL V-3 Liquid, Inorganic Analysis

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Aluminum	U (0.2) J	NA	NA	NA	NA	
Antimony	**0.218 R**	**UHC Treatment Standard**	**UHC**	**1.9**	**1.15 mg/L TCLP**	**This detected concentration was rejected. Therefore, waste must be re-analyzed to determine concentration.**
Arsenic	U (0.0044)	5.0 (D004), UHC Treatment Standard	D004, UHC	1.4	5.0 mg/L TCLP	
Barium	U (0.191) B J	100 mg/l (D005), UHC Treatment Standard	D005, UHC	1.2	21 mg/L TCLP	
Beryllium	U (0.0035) B J	UHC Treatment Standard	UHC	0.82	1.22 mg/L TCLP	
Boron	7.28	NA	NA	NA	NA	
Cadmium	U (0.0044)	1.0 (D006), UHC	D006, UHC	0.69	0.11 mg/L TCLP	
Calcium	51.4 J	NA	NA	NA	NA	
Chromium	U (0.01)	5 (D007), UHC Treatment Standards	D007, UHC	2.77	0.60 mg/L TCLP	
Cobalt	U (0.03)	NA	NA	NA	NA	
Copper	U (0.009) B J	NA	NA	NA	NA	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
B = Reported value is > to instrument detection limit but < contract required detection limit.
R = Result rejected.
W = Post digestion spike absorbance > than sample.

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INEEL V-3 Liquid, Inorganic Analysis

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Iron	U (0.118) E	NA	NA	NA	NA	
Lead	0.0682 W	5.0 (D008), UHC Treatment Standard	D008, UHC	0.69	0.75 mg/L TCLP	
Magnesium	17.9	NA	NA	NA	NA	
Manganese	0.765	NA	NA	NA	NA	
Mercury	U (0.001)	0.2 (D009), UHC Treatment Standard	D009, UHC	0.15	0.025 mg/L TCLP	
Nickel	0.185	UHC Treatment Standard	UHC	3.98	11 mg/L TCLP	
Potassium	51.7	NA	NA	NA	NA	
Selenium	U (0.005)	1 (D010)	D010	0.82	5.7 mg/L TCLP	
Silicon	7.46 J	NA	NA	NA	NA	
Silver	U (0.0024)	5 (D011), UHC Treatment Standard	D011, UHC	0.43	0.14 mg/L TCLP	
Sodium	167	NA	NA	NA	NA	
Thallium	U (0.004)	UHC Treatment Standard	UHC	1.4	0.2 mg/L TCLP	
Tin	NA	NA	NA	NA	NA	
Vanadium	U (0.047) B J	NA	NA	NA	NA	
Zinc	0.964	NA	NA	NA	NA	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
B = Reported value is > to instrument detection limit but < contract required detection limit.
R = Result rejected.
W = Post digestion spike absorbance > than sample.

INEEL V-3 Liquid, Miscellaneous Analysis

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Bromide	1.8	None	NA	NA	NA	
Chloride	76.2	None	NA	NA	NA	
Fluoride	U (5)	None	NA	NA	NA	
Nitrate	0.172	None	NA	NA	NA	
Nitrite	U (4)	None	NA	NA	NA	
Phosphate	2.51	None	NA	NA	NA	
Sulfate	15.7	None	NA	NA	NA	
Total Organic Carbon	105	< 1%	NA	NA	NA	Wastewater is defined as < 1% TOC and < 1% TSS.
Total Halides	183	NA	NA	NA	NA	
Total Suspended Solids	65.3	<1%	NA	NA	NA	Wastewater is defined as < 1% TOC and < 1% TSS.
Oil & Grease	4.29	None	NA	NA	NA	

U = Not Detected (Detection limit in parenthesis).
TOC = 105 mg/L = 1.05E-2 %, which is < 1%.TSS = 65.3 mg/L = 6.53 E-3% which is < 1%. Therefore, liquid phase is considered a wastewater.

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INEEL V-3 Liquids, PCB Analysis

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable TSCA/RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Aroclor-1016	U (0.1)		None	NA	NA	
Aroclor-1221	U (0.2)	NA	NA	NA	NA	
Aroclor-1232	U (0.1)	NA	NA	NA	NA	
Aroclor-1242	U (0.1)	NA	NA	NA	NA	
Aroclor-1248	U (0.1)	NA	NA	NA	NA	
Aroclor-1254	U (0.1)	NA	NA	NA	NA	
Aroclor-1260	U (0.1)	NA	NA	NA	NA	
Total Concentration	U (0.1)	50 mg/kg for TSCA, UHC Treatment Standard for RCRA	None	0.1	10	This waste is not regulated under TSCA and it is below the UHC treatment standard level. Therefore, no PCB treatment is required prior to disposal.

U = Not Detected (Detection limit in parenthesis)

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INEEL OU 1-10 Site TSF-09, Tank V-3
Preliminary Sludge Chemical Characterization Summary

- The sludge phase of the waste associated with this tank is considered a non-wastewater for purposes of complying with the Land Disposal Restrictions. This determination as well as the hazardous waste determination listed below is preliminary based on existing analytical data associated with this waste.

- **Hazardous Waste Determination:** Highest concentrations detected are reported.

  The RCRA Waste codes that apply to this waste are as follows:

Constituent	Concentration Detected in Waste (mg/kg)	Regulatory Limit (mg/L)	Applicable Waste Code	LDR Treatment Standard for non-wastewater (mg/kg)
Beryllium	1.49 mg/L (theoretical)	1.22 mg/L	UHC	1.22 mg/L
Cadmium	0.198 mg/L (TCLP)	0.11 mg/L	UHC	0.11 mg/L
Chromium	0.601 mg/L (TCLP)	0.6 mg/L	UHC	0.6 mg/ L
Nickel	28.2 mg/L (theoretical)	11 mg/L	UHC	11 mg/L
Chloroethane	ND @ 10	6 mg/kg as UHC	UHC	6
2,4-Dinitrotoluene	ND @ 100 or 5.0mg/L (theoretical)	0.13	D030	140
Bis(2-ethyl hexyl) phthalate	9600E	28 mg/kg as a UHC	UHC	28
1,2-Dichlorobenzene	50 J	None if F-listed, or 6 mg/kg as a UHC	UHC	6
Hexachloroethane	ND @ 100 or 5.0 mg/L (theoretical)	3	D034	30
Pyridine	ND @ 100 or 5 mg/L (theoretical)	5	D038	16
Tetrachloroethene	480 (TCLP 8.658 mg/L, J D)	0.7 mg/L as a D039, None if F-listed, or 6 as a UHC	D039	6
Trichloroethene	36 D (TCLP 2.587 mg/L, J D)	0.5 mg/L as a D040, None if F-listed, or 6 as a UHC	F001	6
Vinyl chloride	ND @ 0.5 and 0.6 mg/kg	0.2	D043	6
Total PCB Concentration	400 D	50 mg/kg for TSCA and as a RCRA UHC	TSCA Regulated and RCRA UHC	< 50 for TSCA and10 for RCRA

- **UHC** = Underlying Hazardous Constituent.
  D = Dilution factor of 1000, Dilution factor of 50 for TCLP analysis, and Dilution factor of 20 for PCB analysis.
  J = Estimated Value.
  E = This is the result from re-analysis at a dilution factor of 10.
  ND = Not Detected

- The inorganic analysis performed on the sludge phase of this waste was reported in a total concentration (mg/kg) and in a TCLP extract concentration (mg/L). Although high total concentrations are reported in this waste, the TCLP extract concentrations were below the regulatory limits as a characteristic waste. For the other inorganic analyses identified as UHCs, only total concentrations are reported. Therefore, to evaluate the regulatory status of these constituents in this solid, the total constituent concentration is divided by 20, creating the maximum theoretical leachate concentration (as referenced in the table above), which is then compared to the applicable regulatory limit. The division factor reflects the 20-to-1 ratio of extraction fluid to solid used in the TCLP test method.

- Chloroethane reported a detection limit of 10 mg/kg, however the non-wastewater treatment standard is 6 mg/kg. . LDR guidance suggests that in cases where detection limits are above either the characteristic limit or treatment standards, the generator may use his knowledge of the waste, in lieu of analytical results, to certify that the constituent(s) are not present in the waste. However, since this waste will not be re-analyzed for Chloroethane, this constituent is assumed to be present in the waste at the detection limit value.

  Vinyl chloride was not detected in the sludge at 0.6 mg/kg and at 0.5 mg/L based on TCLP analysis. The characteristic limit for vinyl chloride is 0.2 mg/L. The TCLP detection limit exceeds this characteristic limit, therefore it is uncertain if this waste exceeds the toxicity characteristic based on TCLP analysis. However, the treatment standard for vinyl chloride, either as a toxicity characteristic or as an underlying hazardous constituent (UHC), is 6 mg/kg and vinyl chloride was not detected at 0.6 mg/kg. Based on this information this waste is assumed to contain vinyl chloride at the detection limit value and is considered characteristic however, no treatment for purposes of complying with the Land Disposal Restrictions (LDRs) would be required. As previously stated, LDR guidance suggests that in cases where detection limits are above either the characteristic limit or treatment standards, the generator may use his knowledge of the waste, in lieu of analytical results, to certify that this constituent is not present in the waste.

- The detection limits for a majority of the SVOCs were above the non-wastewater treatment standards, as well as the characteristic limits for several constituents. Again as previously stated, LDR guidance suggests that in cases where detection limits are above either the characteristic limit or treatment standards, the generator may use his knowledge of the waste, in lieu of analytical results, to certify that these constituents are not present in the waste. However, since this waste will not be re-analyzed for

these constituents, the following SVOCs are also assumed to be present in the waste at the detection limit value (see attached tables for concentrations) and are identified as underlying hazardous constituents (The above table identifies those SVOCs with detection limits exceeding the characteristic limits.): Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,I)perylene, Benzo(k)fluoranthene, Butylbenzylphthalate, Bis (2-chloroethoxy) methane, Bis (2-chloroethyl) ether, Bis (2-chloroisopropyl) ether, 4-Bromophenyl-phenylether, Chrysene, 4-Chloroaniline, 4-Chloro-3-Methylphenol, 2-Chloronaphthalene, 2-Chlorophenol, Dibenz(a,h)anthracene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 3,3-Dichlorobenzidine, 2,4-Dichlorophenol, Diethylphthalate, 2,4-Dimethylphthalate, Dimethylphthalate, Di-n-butylphthalate, Di-n-octylphthalate, 2,4-Dinitrophenol, 2,6-Dinitrotoluene, Fluoranthene, Fluorene, Hexachlorobenzene, Hexachlorobutadiene, Hexachlorocyclopentadiene, Indeno(1,2,3-cd)pyrene, 2-Methylphenol, 4-Methylphenol, Napthalene, 2-Nitroaniline, 4-Nitroaniline, Nitrobenzene, 2-Nitrophenol, 4-Nitrophenol, N-nitroso-dimethylamine, N-nitroso-di-n-propylamine, N-nitrosodiphenylamine, Pentachlorophenol, Phenanthrene, Phenol, Pyrene, 1,2,4-Trichlorobenzene, 2,4,5-Trichlorophenol, and.

- Based on a review of the analytical data provided by INEEL, this waste is considered both characteristic and a listed hazardous waste as well as TSCA regulated due to the presence of PCBs > 50 ppm. This waste requires incineration based on 40 CFR 761 for the presence of PCBs and any form of thermal treatment for the presence of the organic constituents, followed-by stabilization of the ash for the inorganic constituents.

Recommendation:

The physical form or phase of the waste to be treated and/or disposed should be the same form or phasedescribed above.

Since this waste will require some form of thermal treatment due to the presence of organics, the waste acceptance criteria of possible treatment facilities should also be considered.

INEEL V-3 Sludge, VOC Analysis

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Acetone	U (0.6) J	Treatment standard limit if UHC	UHC	0.28	160	
Benzene	U (0.6) J U (0.5) J D, TCLP	0.5 mg/l (D018) or treatment standard limit if UHC	D018 or UHC	0.14	10	
Bromodichloromethane	U (0.6) J	Treatment standard limit if UHC	UHC	0.35	15	
Bromoform (Tribromomethane)	U (0.6) J	Treatment standard limit if UHC	UHC	0.63	15	
Bromomethane	U (0.6) J	Treatment standard limit if UHC	UHC	0.11	15	
2-Butanone (MEK)	U (0.6) J U (0.5) J D, TCLP	200 mg/l (D035) or treatment standard limit if UHC	D035 or UHC	0.28	36	
Carbon disulfide	U (0.6) J	Treatment standard limit if UHC	UHC	3.8	4.8 mg/L	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
D = Dilution factor of 50 for TCLP analysis and 1000 for total analysis.
B = Blank contamination

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INEEL V-3 Sludge, VOC Analysis

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Carbon tetrachloride	U (0.6) J U (0.5) J D, TCLP	0.5 mg/L (D019) or treatment standard limit if UHC	D019 or UHC	0.057	6	
Chlorobenzene	U (0.6) J U (0.5) J D, TCLP	100 mg/l (D021) or treatment standard limit if UHC	D021 or UHC	0.057	6	
Chloroethane	U (10)	Treatment standard limit if UHC	UHC	0.27	6	The 10 mg/kg detection limit exceeds the nww treatment standard.
Chloroform	U (0.6) J U (0.5) J D, TCLP	6 mg/l (D022) or treatment standard limit if UHC	D022 or UHC	0.046	6	
Chloromethane	U (0.6) J	Treatment standard limit if UHC	UHC	0.19	30	
Dibromochloromethane (Chlorodibromomethane)	U (0.6) J	Treatment standard limit if UHC	UHC	0.057	15	
1,1-Dichloroethane	U (0.6) J	Treatment standard limit if UHC	UHC	0.059	6	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
D = Dilution factor of 50 for TCLP analysis and 1000 for total analysis.
B = Blank contamination

INEEL V-3 Sludge, VOC Analysis

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
1,2-Dichloroethane	U (0.6) J U (0.5) J D, TCLP	0.5 mg/l (D028), or treatment standard limit if UHC	D028 or UHC	0.21	6	
1,1-Dichloroethene	U (0.6) J U (0.5) J D, TCLP	0.7 mg/l (D029) or treatment standard limit if UHC	D029 or UHC	0.025	6	
1,2-Dichloroethene (total)	U (0.6) J	Treatment standard limit if UHC	UHC	0.054	30	
1,2-Dichloropropane	U (0.6) J	Treatment standard limit if UHC	UHC	0.85	18	
cis-1,3-Dichloropropene	U (0.6) J	Treatment standard limit if UHC	UHC	0.036	18	
trans-1,3-Dichloropropene	U (0.6) J	Treatment standard limit if UHC	UHC	0.036	18	
Ethylbenzene	U (0.6) J	Treatment standard limit if UHC	UHC	0.057	10	
2-Hexanone (Methyl n-butyl ketone)	U (0.6) J	NA	NA	NA	NA	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
D = Dilution factor of 50 for TCLP analysis and 1000 for total analysis.
B = Blank contamination

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INEEL V-3 Sludge, VOC Analysis

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
4-Methyl-2-pentanone (MIK)	U (0.6) J	Treatment standard limit if UHC	UHC	0.14	33	
Methylene chloride	2.7 J B D	Treatment standard limit if UHC	UHC	0.089	30	
Styrene	U (0.6) J	NA	NA	NA	NA	
1,1,2,2-Tetrachloroethane	U (0.6) J	Treatment standard limit if UHC	UHC	0.057	6	
Tetrachloroethene	**480 8.658 mg/L J D, TCLP**	**0.7 mg/l (D039) or treatment standard limit if UHC**	**D039 or UHC**	**0.056**	**6**	**8.6 mg/L is above the characteristic limit, and the 480 mg/kg concentration exceeds the nww treatment standard. Therefore, it may be either D039, F-listed or a UHC, requiring treatment.**
Toluene	U (0.6) J	Treatment standard limit if UHC	UHC	0.08	10	
1,1,1-Trichloroethane	U (0.6) J	Treatment standard limit if UHC	UHC	0.054	6	
1,1,2-Trichloroethane	U (0.6) J	Treatment standard limit if UHC	UHC	0.054	6	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
D = Dilution factor of 50 for TCLP analysis and 1000 for total analysis.
B = Blank contamination

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INEEL V-3 Sludge, VOC Analysis

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Trichloroethene	**36 D 2.587 mg/L J D, TCLP**	**None if listed**	**F001**	**0.054**	**6**	**2.5 mg/L exceeds the characteristic limit, and the total concentration is above the non-wastewater treatment standard. Therefore it may be D040, F002 or UHC, requiring treatment.**
Vinyl chloride	**U (0.6) J U (0.5) J D, TCLP**	**0.2 mg/l (D043), orTreatment standard limit if UHC**	**D043 or UHC**	**0.27**	**6**	**0.5 mg/L detection limit for TCLP exceeds the characteristic limit of 0.2 mg/L. However, the 0.6 mg/kg detection limit is below the treatment standard. Therefore, no treatment would be required regardless if it is a D043 or a UHC.**
Xylene (ortho)	U (0.6) J	NA	NA	NA	NA	
Xylene (total meta and para)	U (0.6) J	Treatment standard limit if UHC	UHC	0.32	30	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
D = Dilution factor of 50 for TCLP analysis and 1000 for total analysis.
B = Blank contamination

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INEEL V-3 Sludge, SVOC analysis.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Acenaphthene	U (100)	UHC Treatment Standard	UHC	0.059	3.4	100 mg/kg detection limit exceeds the nww treatment standard.
Acenaphthylene	U (100)	UHC Treatment Standard	UHC	0.059	3.4	100 mg/kg detection limit exceeds the nww treatment standard.
Anthracene	U (100)	UHC Treatment Standard	UHC	0.059	3.4	100 mg/kg detection limit exceeds the nww treatment standard.
Benzo (a) anthracene	U (100)	UHC Treatment Standard	UHC	0.059	3.4	100 mg/kg detection limit exceeds the nww treatment standard.
Benzo (a) pyrene	U (100)	UHC Treatment Standard	UHC	0.061	3.4	100 mg/kg detection limit exceeds the nww treatment standard.
Benzo (b) fluoranthene	U (100)	UHC Treatment Standard	UHC	0.11	6.8	100 mg/kg detection limit exceeds the nww treatment standard.
Benzo (g,h,I) perylene	U (100)	UHC Treatment Standard	UHC	0.0055	1.8	100 mg/kg detection limit exceeds the nww treatment standard.
Benzo (k) fluoranthene	U (100)	UHC Treatment Standard	UHC	0.11	6.8	100 mg/kg detection limit exceeds the nww treatment standard.
Benzoic acid	U (500)	None	NA	NA	NA	
Benzyl alcohol	U (100)	None	NA	NA	NA	
Butylbenzylphthalate	U (100)	UHC Treatment Standard	UHC	0.017	28	100 mg/kg detection limit exceeds the nww treatment standard.
Bis (2-chloroethoxy)methane	U (100)	UHC Treatment Standard	UHC	0.036	7.2	100 mg/kg detection limit exceeds the nww treatment standard.
Bis (2-chloroethyl)ether	U (100)	UHC Treatment Standard	UHC	0.033	6	100 mg/kg detection limit exceeds the nww treatment standard.
Bis (2-chloroisopropyl) ether	U (100)	UHC Treatment Standard	UHC	0.055	7.2	100 mg/kg detection limit exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
E = This is a result from re-analysis at a dilution factor of 10.

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INEEL V-3 Sludge, SVOC analysis.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Bis (2-ethylhexyl) phthalate	**9600 E**	**UHC Treatment Standard**	**UHC**	**0.28**	**28**	**9600 mg/kg concentration exceeds the nww treatment standard. Therefore this constituent is a UHC.**
4-Bromophenyl-phenylether	U (100)	UHC Treatment Standard	UHC	0.055	15	100 mg/kg detection limit exceeds the nww treatment standard.
Carbozole (or Carbazole)	U (100)	None	NA	NA	NA	
Chrysene	U (100)	UHC Treatment Standard	UHC	0.059	3.4	100 mg/kg detection limit exceeds the nww treatment standard.
4-Chloroaniline (p-chloroaniline)	U (100)	UHC Treatment Standard	UHC	0.46	16	100 mg/kg detection limit exceeds the nww treatment standard.
4-Chloro-3-Methylphenol (p-chloro-m-cresol)	U (100)	UHC Treatment Standard	UHC	0.018	14	100 mg/kg detection limit exceeds the nww treatment standard.
2-Chloronaphthalene	U (100)	UHC Treatment Standard	UHC	0.055	5.6	100 mg/kg detection limit exceeds the nww treatment standard.
4-Chlorophenyl-phenylether	U (100)	None	NA	NA	NA	
2-Chlorophenol	U (100)	UHC Treatment Standard	UHC	0.044	5.7	100 mg/kg detection limit exceeds the nww treatment standard.
Dibenz(a,h)anthracene	U (100)	UHC Treatment Standard	UHC	0.055	8.2	100 mg/kg detection limit exceeds the nww treatment standard.
Dibenzofuran	U (100)	None	NA	NA	NA	
1,2-Dichlorobenzene (o-dichlorobenzene)	**50 J**	**UHC Treatment Standard**	**UHC**	**0.088**	**6**	**50 mg/kg concentration exceeds the nww treatment standard. Therefore this constituent is a UHC or an F-listed constituent.**
1,3-Dichlorobenzene (m-dichlorobenzene)	U (100)	UHC Treatment Standard	UHC	0.036	6	100 mg/kg detection limit exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).

J = Estimated Value

E = This is a result from re-analysis at a dilution factor of 10.

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INEEL V-3 Sludge, SVOC analysis.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
1,4-Dichlorobenzene (p-dichlorobenzene)	U (100)	7.5 (D027), UHC Treatment Standard	D027, UHC	0.09	6	100 mg/kg detection limit exceeds the nww treatment standard.
3,3-Dichlorobenzidine (Dibenz (a,h) anthracene)	U (100)	UHC Treatment Standard	UHC	0.055	8.2	100 mg/kg detection limit exceeds the nww treatment standard.
2,4-Dichlorophenol	U (100)	UHC Treatment Standard	UHC	0.044	14	100 mg/kg detection limit exceeds the nww treatment standard.
Diethylphthalate	U (100)	UHC Treatment Standard	UHC	0.2	28	100 mg/kg detection limit exceeds the nww treatment standard.
2,4-Dimethylphenol	U (100)	UHC Treatment Standard	UHC	0.036	14	100 mg/kg detection limit exceeds the nww treatment standard.
Dimethylphthalate	U (100)	UHC Treatment Standard	UHC	0.047	28	100 mg/kg detection limit exceeds the nww treatment standard.
Di-n-butylphthalate	U (100)	UHC Treatment Standard	UHC	0.057	28	100 mg/kg detection limit exceeds the nww treatment standard.
Di-n-octylphthalate	U (100)	UHC Treatment Standard	UHC	0.017	28	100 mg/kg detection limit exceeds the nww treatment standard.
4,6-Dinitro-2-methylphenol	U (500)	None	NA	NA	NA	
2,4-Dinitrophenol	U (500)	UHC Treatment Standard	UHC	0.12	160	500 mg/kg detection limit exceeds the nww treatment standard.
2,4-Dinitrotoluene	U (100)	0.13 mg/L (D030), UHC Treatment Standard	D030, UHC	0.32	140	100 mg/kg detection limit exceeds the nww treatment standard. Using 100 mg/kg, the theoretical leachate value is 5.0 mg/L which exceeds the characteristic limit. Therefore, this may be a characteristic constituent or a UHC.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
E = This is a result from re-analysis at a dilution factor of 10.

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INEEL V-3 Sludge, SVOC analysis.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
2,6-Dinitrotoluene	U (100)	UHC Treatment Standard	UHC	0.55	28	100 mg/kg detection limit exceeds the nww treatment standard.
Fluoranthene	U (100)	UHC Treatment Standard	UHC	0.068	3.4	100 mg/kg detection limit exceeds the nww treatment standard.
Fluorene	U (100)	UHC Treatment Standard	UHC	0.059	3.4	100 mg/kg detection limit exceeds the nww treatment standard.
Hexachlorobenzene	U (100)	0.13 (D032), UHC Treatment Standard	D032, UHC	0.055	10	100 mg/kg detection limit exceeds the nww treatment standard.
Hexachlorobutadiene (Hexachloro-1,3-butadiene	U (100)	0.5 (D033)UHC Treatment Standard	D033, UHC	0.055	5.6	100 mg/kg detection limit exceeds the nww treatment standard.
Hexachlorocyclopentadiene	U (100)	UHC Treatment Standard	UHC	0.057	2.4	100 mg/kg detection limit exceeds the nww treatment standard.
Hexachloroethane	U (100)	3.0 mg/L (D034), UHC Treatment Standard	D034, UHC	0.055	30	100 mg/kg detection limit exceeds the nww treatment standard. Using 100 mg/kg, the theoretical leachate value is 5.0 mg/L which exceeds the characteristic limit. Therefore, this may be a characteristic constituent or a UHC.
Indeno (1,2,3-cd) pyrene	U (100)	UHC Treatment Standard	UHC	0.0055	3.4	100 mg/kg detection limit exceeds the nww treatment standard.
Isophorone	U (100)	None	NA	NA	NA	
2-Methylnaphthalene	32 J	None	NA	NA	NA	
2-Methylphenol (o-cresol)	U (100)	200 mg/L or UHC treatment standard	D023, UHC	0.11	5.6	100 mg/kg detection limit exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).

J = Estimated Value

E = This is a result from re-analysis at a dilution factor of 10.

INEEL V-3 Sludge, SVOC analysis.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
4-Methylphenol (p-cresol)	U (100)	200 mg/L or UHC treatment standard	D025, UHC	0.77	5.6	100 mg/kg detection limit exceeds the nww treatment standard.
Naphthalene	U (100)	UHC Treatment Standard	UHC	0.059	5.6	100 mg/kg detection limit exceeds the nww treatment standard.
2-Nitroaniline (o-nitroaniline)	U (500)	UHC Treatment Standard	UHC	0.27	14	500 mg/kg detection limit exceeds the nww treatment standard.
3-Nitroaniline (m-nitroaniline)	U (500)	None	NA	NA	NA	
4-Nitroaniline (p-nitroaniline)	U (500)	UHC Treatment Standard	UHC	0.028	28	500 mg/kg detection limit exceeds the nww treatment standard.
Nitrobenzene	U (100)	2.0 (D036) or UHC Treatment Standard	D036 or UHC	0.068	14	100 mg/kg detection limit exceeds the nww treatment standard.
2-Nitrophenol (o-nitrophenol)	U (100)	UHC Treatment Standard	UHC	0.028	13	100 mg/kg detection limit exceeds the nww treatment standard.
4-Nitrophenol (p-nitrophenol)	U (500)	UHC Treatment Standard	UHC	0.12	29	870 mg/kg detection limit exceeds the nww treatment standard.
N-nitroso-di-n-propylamine (Di-n-propylnitrosamine)	U (100)	UHC Treatment Standard	UHC	0.4	14	100 mg/kg detection limit exceeds the nww treatment standard.
N-nitrosodiphenylamine (Diphenylnitrosamine)	U (100)	UHC Treatment Standard	UHC	0.92	13	100 mg/kg detection limit exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
E = This is a result from re-analysis at a dilution factor of 10.

INEEL V-3 Sludge, SVOC analysis.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Pentachlorophenol	U (500)	100 mg/L (D037), UHC Treatment Standard	D037, UHC	0.089	7.4	500 mg/kg detection limit exceeds the nww treatment standard. Using 500 mg/kg, the theoretical leachate value is 25.0 mg/L which exceeds the characteristic limit. Therefore, this may be a characteristic constituent or a UHC.
Phenanthrene	U (100)	UHC Treatment Standard	UHC	0.059	5.6	100 mg/kg detection limit exceeds the nww treatment standard.
Phenol	U (100)	UHC Treatment Standard	UHC	0.039	6.2	100 mg/kg detection limit exceeds the nww treatment standard.
Pyrene	U (100)	UHC Treatment Standard	UHC	0.067	8.2	100 mg/kg detection limit exceeds the nww treatment standard.
Pyridine	U (100)	5.0 (D038) or UHC Treatment Standard	D038 or UHC	0.014	16	100 mg/kg detection limit exceeds the nww treatment standard. Using 100 mg/kg, the theoretical leachate value is 5.0 mg/L which at the characteristic limit. Therefore, this may or may not be a characteristic constituent or a UHC.
Tributylphosphate	NA	None	NA	NA	NA	
1,2,4-Trichlorobenzene	U (100)	UHC Treatment Standard	UHC	0.055	19	100 mg/kg detection limit exceeds the nww treatment standard.
2,4,5-Trichorophenol	U (500)	44 (D041), UHC Treatment Standard	D041, UHC	0.18	7.4	500 mg/kg detection limit exceeds the nww treatment standard.
2,4,6-Trichlorophenol	U (100)	2 (D042), UHC Treatment Standard	D042, UHC	0.035	7.4	100 mg/kg detection limit exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
E = This is a result from re-analysis at a dilution factor of 10.

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INEEL V-3 Sludge, Inorganic Analysis

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Aluminum	5470 D	NA	NA	NA	NA	
Antimony	17.9 B	UHC Treatment Standard	UHC	1.9	1.15 mg/L TCLP	Using 17.9 mg/kg, the theoretical leachate value is 0.895 mg/L .
Arsenic	21.4 U (0.0386), TCLP	5.0 (D004), UHC Treatment Standard	D004, UHC	1.4	5.0 mg/L TCLP	
Barium	184 1.8 mg/L TCLP	100 mg/l (D005), UHC Treatment Standard	D005, UHC	1.2	21 mg/L TCLP	
Beryllium	**29.7**	**UHC Treatment Standard**	**UHC**	**0.82**	**1.22 mg/L TCLP**	**Using 29.7 mg/kg, the theoretical leachate value is 1.485 mg/L which is above the nww treatment standard. Therefore it is a UHC .**
Boron	38.5	NA	NA	NA	NA	
Cadmium	**102 J 0.198 mg/L, TCLP**	**1.0 (D006), UHC**	**D006, UHC**	**0.69**	**0.11 mg/L TCLP**	**0.198 mg/L TCLP concentration is below the characteristic limit however it exceeds the nww treatment standard limit. Therefore, cadmium may be a UHC.**
Calcium	36800 D	NA	NA	NA	NA	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
B = Reported value is > to instrument detection limit but < contract required detection limit.
D = Dilution Factor of 10.
Y = Laboratory defined flag.
E = Estimate value

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INEEL V-3 Sludge, Inorganic Analysis

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Chromium	**947 0.601 mg/L TCLP**	**5 (D007), UHC Treatment Standards**	**D007, UHC**	**2.77**	**0.60 mg/L TCLP**	**Using 0.601 mg/L concentration this waste is below the characteristic limit, however it exceeds the nww treatment standard slightly. Therefore, this constituent is a UHC.**
Cobalt	9.41	NA	NA	NA	NA	
Copper	699	NA	NA	NA	NA	
Iron	18900	NA	NA	NA	NA	
Lead	1890 0.0426 mg/L, TCLP	5.0 (D008), UHC Treatment Standard	D008, UHC	0.69	0.75 mg/L TCLP	
Magnesium	8480	NA	NA	NA	NA	
Manganese	8710 D	NA	NA	NA	NA	
Mercury	1390 Y E 0.003 mg/L, TCLP	0.2 (D009), UHC Treatment Standard	D009, UHC	0.15	0.025 mg/L TCLP	
Nickel	**563 J**	**UHC Treatment Standard**	**UHC**	**3.98**	**11 mg/L TCLP**	**Using 563 mg/kg, the theoretical leachate value is 28.15 mg/L which is above the nww treatment standard limt. This is a UHC.**

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
B = Reported value is > to instrument detection limit but < contract required detection limit.
D = Dilution Factor of 10.
Y = Laboratory defined flag.
E = Estimate value

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INEEL V-3 Sludge, Inorganic Analysis

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Potassium	5290 J	NA	NA	NA	NA	
Selenium	U (2.09) U (0.047) mg/L TCLP	1 (D010)	D010	0.82	5.7 mg/L TCLP	
Silicon	3960 J	NA	NA	NA	NA	
Silver	1310 J 0.016 mg/L, TCLP	5 (D011), UHC Treatment Standard	D011, UHC	0.43	0.14 mg/L TCLP	
Sodium	6470 J	NA	NA	NA	NA	
Thallium	U (2)	UHC Treatment Standard	UHC	1.4	0.2 mg/L TCLP	Using 2.0 mg/kg, the theoretical leachate value is 0.1 mg/L which is below the nww treatment standard limt.
Tin	60.3 B	NA	NA	NA	NA	
Vanadium	10.8	NA	NA	NA	NA	
Zinc	9730	NA	NA	NA	NA	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
B = Reported value is > to instrument detection limit but < contract required detection limit.
D = Dilution Factor of 10.
Y = Laboratory defined flag.
E = Estimate value

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INEEL V-3 Sludge, Miscellaneous Analysis

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Bromide	U (10)	None	NA	NA	NA	
Chloride	64.3	None	NA	NA	NA	
Fluoride	U (5)	None	NA	NA	NA	
Nitrate	U (2)	None	NA	NA	NA	
Nitrite	U (4)	None	NA	NA	NA	
Phosphate	U (3)	None	NA	NA	NA	
Sulfate	332	None	NA	NA	NA	
Total Organic Carbon	937,000	< 1%	NA	NA	NA	Wastewater is defined as < 1% TOC and < 1% TSS.
Total Halides	1320	NA	NA	NA	NA	
Total Suspended Solids	NA	<1%	NA	NA	NA	Wastewater is defined as < 1% TOC and < 1% TSS.
pH	7.08-7.86	≤ 2 or ≥ 12.5	None	NA	NA	
Density	1.02					

U = Not Detected (Detection limit in parenthesis).
TOC = 937000 mg/kg = 93.7 %, which is > 1%. This sludge is considered a non-wastewater. (Note: This percentage of TOC is not consistant with organics detected in the sludge)

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INEEL V-3 Sludge, PCB Analysis

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable TSCA/RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Aroclor-1016	U (19)		None	NA	NA	
Aroclor-1221	U (37)	NA	NA	NA	NA	
Aroclor-1232	U (19)	NA	NA	NA	NA	
Aroclor-1242	U (19)	NA	NA	NA	NA	
Aroclor-1248	U (19)	NA	NA	NA	NA	
Aroclor-1254	U (19)	NA	NA	NA	NA	
Aroclor-1260	400 D	NA	NA	NA	NA	
Total Concentration	400 D	50 mg/kg for TSCA, UHC Treatment Standard for RCRA	None	0.1	10	This waste is regulated under TSCA and it may be subject to the UHC treatment standard level. Therefore, this waste must be incinerated prior to disposal for purposes of PCBs.

U = Not Detected (Detection limit in parenthesis).
D = Dilution Factor of 20

INEEL OU 1-10 Site TSF-18, Tank V-9
Preliminary Liquid Phase Chemical Characterization Summary

- The liquid phase of the waste associated with this tank is considered a wastewater for purposes of complying with the Land Disposal Restrictions, in that it contains <1% TOC and <1% TSS. This determination as well as the hazardous waste determination listed below is preliminary based on existing analytical data.

- **Hazardous Waste Determination:** Highest concentrations detected are reported.

The RCRA Waste codes that apply to this waste are as follows:

Constituent	Concentration Detected in Waste (mg/L)	Regulatory Limit (mg/L)	Applicable Waste Code	LDR Treatment Standard for wastewater (mg/L)
Cadmium	1.9	1.0	D006	0.69
Mercury	0.563	0.2	D009	0.15
Benzene	ND @ 17	0.5	D018	10
Chloroform	ND @ 10	6.0	D022	0.046
1,2-Dichloroethane	ND@ 25	0.5	D028	0.21
1,1-Dichloroethene	ND @ 11	0.7	D029	0.025
Methylene Chloride	59.0	None (0.089 as a UHC)	UHC	0.089
Tetrachloroethene	ND @ 17	0.7	D039	0.056
1,1,1-Trichloroethane	58	None (0.054 as a UHC)	UHC	0.054
Trichloroethene	410	None (0.054 as a UHC)	F001	0.054
Lead	0.942	0.69	UHC	0.69
Nickel	13.8	3.98	UHC	3.98
3,3 Dichlorobenzidene (Dibenz (a,h) anthracene)	ND @ 0.066	0.055	UHC	0.055
2,4-Dimethylphenol	0.079	0.036	UHC	0.036

Constituent	Concentration Detected in Waste (mg/L)	Regulatory Limit (mg/L)	Applicable Waste Code	LDR Treatment Standard for wastewater (mg/L)
Indeno (1,2,3-cd) pyrene	ND @ 0.036	0.0055	UHC	0.0055
2-Methylphenol (o-cresol)	0.830E	200 (0.11 as a UHC)	UHC	0.11
4-Methylphenol (p-cresol)	0.830E	200 (0.77 as a UHC)	UHC	0.77
Phenol	0.1	0.039	UHC	0.039

- UHC = Underlying Hazardous Constituent

  E = Concentration exceeded the calibration range of the instrument.
  ND = Not Detected

- The detection limit for two SVOCs exceeded the treatment standard, therefore it can not be determined if this constituent is present in the waste below the level requiring treatment. LDR guidance suggests that in cases where detection limits are above either the characteristic limit or treatment standards, the generator may use his knowledge of the waste, in lieu of analytical results, to certify that the constituents are not present in the waste. However, since this waste will not be re-analyzed for these two constituents, these constituents are assumed to be present in the waste at the detection limit value.

- The detection limits for a majority of the VOCs were above the wastewater treatment standard as well as the characteristic limit for certain constituents. Again, as previously stated, LDR guidance suggests that in cases where detection limits are above either the characteristic limit or the treatment standard, the generator may use his/her knowledge of the waste, in lieu of analytical results, to certify that these constituents are not present in the waste. However, since this waste will not be re-analyzed for these constituents the following VOCs are also assumed to be present in the waste at the detection limit value (see attached tables for concentrations) and idaentified as underlying hazardous constituents (The above table identifies those VOCs with detection limits exceeding characteristic limits.): Acetone, Bromodichloromethane, Bromoform, Bromomethane, 2-Butanone, Carbon disulfide, Carbon Tetrachloride, Chlorobenzene, Chloroethane, Chloromethane, Dibromochloromethane, 1,3-Dichloroethane, trans-1,2-Dichloroethene, 1,2-Dichloropropane, cis-1,3-Dichloropropene, trans-1,3-Dichloropropene, Ethylbenzene, 4-Methyl-2-pentanone, 1,1,2,2-Tetrachloroethane, Toluene, 1,1,2-Trichloroethane, Vinyl Chloride, and Xylene.

- Based on a review of the analytical data provided by INEEL, this waste is considered both a characteristic and a listed hazardous waste requiring treatment of the organic constituents followed-by stabilization of the ash for the inorganic constituents.

- **Recommendation:** The physical form or phase of the waste to be disposed should be the same form as described above.

  If this waste will not be treated on-site, the waste acceptance criteria of possible off-site treatment facilities should also be considered.

INEEL V-9 VOC Analysis on liquid phase.

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Acetone	U (110)	Treatment standard limit if UHC	UHC	0.28	160	The 110 mg/L detection limit exceeds the ww treatment standard. Assuming the density of this liquid is equivalent to water, the 110 mg/L is below the nww treatment standard.
Benzene	U (17)	0.5 mg/l (D018) or treatment standard limit if UHC	D018 or UHC	0.14	10	The 17 mg/L detection limit exceeds the characteristic limit as well as both treatment standards.
Bromodichloromethane	U (12)	Treatment standard limit if UHC	UHC	0.35	15	The 12 mg/L detection limit exceeds the ww treatment standards, but is below the nww treatment standard.
Bromoform (Tribromomethane)	U (43)	Treatment standard limit if UHC	UHC	0.63	15	The 43 mg/L detection limit exceeds the ww treatment standards, but is below the nww treatment standard.
Bromomethane	U (7.8)	Treatment standard limit if UHC	UHC	0.11	15	The 7.8 mg/L detection limit exceeds the ww treatment standard. Assuming the density of this liquid is equivalent to water, the 7.8 mg/L is below the nww treatment standard.
2-Butanone (MEK)	U (56)	200 mg/l (D035) or treatment standard limit if UHC	D035 or UHC	0.28	36	The 56 mg/L detection limit exceeds both treatment standards, but is below the characteristic limit.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

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INEEL V-9 VOC Analysis on liquid phase.

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Carbon disulfide	U (13)	Treatment standard limit if UHC	UHC	3.8	4.8 mg/l	The 13 mg/L detection limit exceeds both treatment standards.
Carbon tetrachloride	U (11)	Treatment standard limit if UHC	UHC	0.057	6	The 11 mg/L detection limit exceeds both treatment standards.
Chlorobenzene	U (10)	100 mg/l (D021) or treatment standard limit if UHC	D021 or UHC	0.057	6	The 10 mg/L detection limit exceeds both treatment standards, but is below the characteristic limit.
Chloroethane	U (17)	Treatment standard limit if UHC	UHC	0.27	6	The 17 mg/L detection limit exceeds both treatment standards.
Chloroform	U (10)	6 mg/l (D022) or treatment standard limit if UHC	D022 or UHC	0.046	6	The 10 mg/L detection limit exceeds the characteristic limit as well as both treatment standards.
Chloromethane	U (3.7)	Treatment standard limit if UHC	UHC	0.19	30	The 3.7 mg/L detection limit exceeds the ww treatment standards, but is below the nww treatment standard.
Dibromochloromethane (Chlorodibromomethane)	U (15)	Treatment standard limit if UHC	UHC	0.057	15	The 15 mg/L detection limit exceeds the ww treatment standards, but is below the nww treatment standard.
1,1-Dichloroethane	U (3.8)	Treatment standard limit if UHC	UHC	0.059	6	The 3.8 mg/L detection limit exceeds the ww treatment standards, but is below the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

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INEEL V-9 VOC Analysis on liquid phase.

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
1,2-Dichloroethane	U (25)	0.5 mg/l (D028), or treatment standard limit if UHC	D028 or UHC	0.21	6	The 25 mg/L detection limit exceeds the characteristic limit as well as both treatment standards.
1,1-Dichloroethene	U (11)	0.7 mg/l (D029) or treatment standard limit if UHC	D029 or UHC	0.025	6	The 11 mg/L detection limit exceeds the characteristic limit as well as both treatment standards.
1,2-Dichloroethene (cis-Dichloroethene)	U (9.5)	NA	NA	NA	NA	
trans-1,2-Dichloroethene	U (7.5)	Treatment standard limit if UHC	UHC	0.054	30	The 7.5 mg/L detection limit exceeds the ww treatment standards, but is below the nww treatment standard.
1,2-Dichloropropane	U (18)	Treatment standard limit if UHC	UHC	0.85	18	The 718 mg/L detection limit exceeds the ww treatment standards, but is at the nww treatment standard.
cis-1,3-Dichloropropene	U (14)	Treatment standard limit if UHC	UHC	0.036	18	The 14 mg/L detection limit exceeds the ww treatment standards, but is below the nww treatment standard.
trans-1,3-Dichloropropene	U (19)	Treatment standard limit if UHC	UHC	0.036	18	The 19 mg/L detection limit exceeds both treatment standards.
Ethylbenzene	U (11)	Treatment standard limit if UHC	UHC	0.057	10	The 11 mg/L detection limit exceeds both treatment standards.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

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INEEL V-9 VOC Analysis on liquid phase.

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
2-Hexanone (Methyl n-butyl ketone)	U (38)	NA	NA	NA	NA	
4-Methyl-2-pentanone (MIK)	U (14)	Treatment standard limit if UHC	UHC	0.14	33	The 14 mg/L detection limit exceeds the ww treatment standards, but is below the nww treatment standard.
Methylene chloride	**59J**	**Treatment standard limit if UHC**	**UHC**	**0.089**	**30**	**The estimated value of 59 mg/L exceeds both treatment standards. Therefore, the waste must be treated prior to disposal.**
Styrene	U (17)	NA	NA	NA	NA	
1,1,2,2-Tetrachloroethane	U (11)	Treatment standard limit if UHC	UHC	0.057	6	The 11 mg/L detection limit exceeds both treatment standards.
Tetrachloroethene	U (17)	0.7 mg/l (D039) or treatment standard limit if UHC	D039 or UHC	0.056	6	The 17 mg/L detection limit exceeds the characteristic limit as well as both treatment standards.
Toluene	U (15)	Treatment standard limit if UHC	UHC	0.08	10	The 15 mg/L detection limit exceeds both treatment standards.
1,1,1-Trichloroethane	**58 J**	**Treatment standard limit if UHC**	**UHC**	**0.054**	**6**	**58 mg/L exceeds both treatment standards. Therefore, this waste must be treated prior to disposal.**
1,1,2-Trichloroethane	U (10)	Treatment standard limit if UHC	UHC	0.054	6	The 10 mg/L detection limit exceeds both treatment standards.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

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INEEL V-9 VOC Analysis on liquid phase.

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Trichloroethene	410	None if listed	F001	0.054	6	410 mg/L exceeds the characteristic limit as well as both treatment standards. This waste must be treated prior to disposal.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

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INEEL V-9 VOC Analysis on liquid phase.

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Constituents	**Concentration mg/L**	**Applicable Regulatory Limit**	**Applicable RCRA Waste Code**	**LDR Treatment Standard for wastewater in mg/l**	**LDR Treatment Standard for non-wastewater in mg/kg**	**Comments**
Vinyl chloride	U (13)	0.2 mg/l (D043), orTreatment standard limit if UHC	D043 or UHC	0.27	6	The 13 mg/L detection limit exceeds the characteristic limit as well as both treatment standards.
Xylene (ortho)	U (14)	NA	NA	NA	NA	
Xylene (total meta and para)	U (19)	Treatment standard limit if UHC	UHC	0.32	30	The 19 mg/L detection limit exceeds both the ww standards but is below the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

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INEEL V-9 SVOC Analysis on liquid phase.

Constituents	Concentration ug/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Acenaphthene	U (6)	UHC Treatment Standard	UHC	0.059	3.4	
Acenaphthylene	U (7)	UHC Treatment Standard	UHC	0.059	3.4	
Anthracene	U (5)	UHC Treatment Standard	UHC	0.059	3.4	
Benzo (a) anthracene	U (8)	UHC Treatment Standard	UHC	0.059	3.4	
Benzo (a) pyrene	U (1)	UHC Treatment Standard	UHC	0.061	3.4	
Benzo (b) fluoranthene	U (7)	UHC Treatment Standard	UHC	0.11	6.8	
Benzo (g,h,I) perylene	U (3)	UHC Treatment Standard	UHC	0.0055	1.8	
Benzo (k) fluoranthene	U (6)	UHC Treatment Standard	UHC	0.11	6.8	
Butylbenzylphthalate	U (8)	UHC Treatment Standard	UHC	0.017	28	
Bis (2-chloroethoxy)methane	U (8)	UHC Treatment Standard	UHC	0.036	7.2	
Bis (2-chloroethyl)ether	U (7)	UHC Treatment Standard	UHC	0.033	6	
Bis (2-chloroisopropyl) ether	U (6)	UHC Treatment Standard	UHC	0.055	7.2	
Bis (2-ethylhexyl) phthalate	38	UHC Treatment Standard	UHC	0.28	28	Concentration is below both treatment standards, therefore it is not a UHC.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
E = Concentration exceeded the calibration range of the instrument.

INEEL V-9 SVOC Analysis on liquid phase.

Constituents	Concentration ug/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
4-Bromophenyl-phenylether	U (7)	UHC Treatment Standard	UHC	0.055	15	
Carbozole (or Carbazole)	U (10)	None	NA	NA	NA	
Chrysene	U (8)	UHC Treatment Standard	UHC	0.059	3.4	
4-Chloroaniline (p-chloroaniline)	U (27)	UHC Treatment Standard	UHC	0.46	16	
4-Chloro-3-Methylphenol (p-chloro-m-cresol)	U (8)	UHC Treatment Standard	UHC	0.018	14	
2-Chloronaphthalene	U (10)	UHC Treatment Standard	UHC	0.055	5.6	
4-Chlorophenyl-phenylether	U (7)	None	NA	NA	NA	
2-Chlorophenol	U (6)	UHC Treatment Standard	UHC	0.044	5.7	
Dibenz(a,h)anthracene	U (5)	UHC Treatment Standard	UHC	0.055	8.2	
Dibenzofuran	U (4)	None	NA	NA	NA	
1,2-Dichlorobenzene (o-dichlorobenzene)	**210E**	**UHC Treatment Standard**	**UHC**	**0.088**	**6**	**Waste may be F-listed and the concentration is above the wastewater treatment standard.**
1,3-Dichlorobenzene (m-dichlorobenzene)	U (6)	UHC Treatment Standard	UHC	0.036	6	
1,4-Dichlorobenzene (p-dichlorobenzene)	49	7.5 (D027), UHC Treatment Standard	D027, UHC	0.09	6	Concentration is below both treatment standards, therefore it is not a UHC. Concentration is also below the characteristic level.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
E = Concentration exceeded the calibration range of the instrument.

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INEEL V-9 SVOC Analysis on liquid phase.

Constituents	Concentration ug/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
3,3-Dichlorobenzidine (Dibenz (a,h) anthracene)	U (66)	UHC Treatment Standard	UHC	0.055	8.2	Detection Limit is above the wastewater treatment standard.
2,4-Dichlorophenol	U (8)	UHC Treatment Standard	UHC	0.044	14	
Diethylphthalate	U (8)	UHC Treatment Standard	UHC	0.2	28	
2,4-Dimethylphenol	79	UHC Treatment Standard	UHC	0.036	14	
Dimethylphthalate	U (7)	UHC Treatment Standard	UHC	0.047	28	
Di-n-butylphthalate	U (3)	UHC Treatment Standard	UHC	0.057	28	
Di-n-octylphthalate	6J	UHC Treatment Standard	UHC	0.017	28	
4,6-Dinitro-2-methylphenol	190E	None	NA	NA	NA	
2,4-Dinitrophenol	U (27)	UHC Treatment Standard	UHC	0.12	160	
2,4-Dinitrotoluene	U (10)	UHC Treatment Standard	UHC	0.32	140	
2,6-Dinitrotoluene	U (8)	UHC Treatment Standard	UHC	0.55	28	
Fluoranthene	U (8)	UHC Treatment Standard	UHC	0.068	3.4	
Fluorene	U (5)	UHC Treatment Standard	UHC	0.059	3.4	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
E = Concentration exceeded the calibration range of the instrument.

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INEEL V-9 SVOC Analysis on liquid phase.

Constituents	Concentration ug/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Hexachlorobenzene	U (7)	0.13 (D032), UHC Treatment Standard	D032, UHC	0.055	10	
Hexachlorobutadiene (Hexachloro-1,3-butadiene	U (10)	0.5 (D033)UHC Treatment Standard	D033, UHC	0.055	5.6	
Hexachlorocyclopentadiene	U (13)	UHC Treatment Standard	UHC	0.057	2.4	
Hexachloroethane	U (8)	UHC Treatment Standard	UHC	0.055	30	
Indeno (1,2,3-cd) pyrene	**U (36)**	**UHC Treatment Standard**	**UHC**	**0.0055**	**3.4**	**Detection Limit is above the wastewater treatment standard.**
Isophorone	U (7)	None	NA	NA	NA	
2-Methylnaphthalene	U (14)	None	NA	NA	NA	
2-Methylphenol (o-cresol)	**830 E**	**200 mg/L, UHC Treatment Standard**	**D023, UHC**	**0.11**	**5.6**	**Waste is below the characteristic limit, but exceeds the ww treatment standard. Therefore it is a UHC.**
4-Methylphenol (p-cresol)	**830E**	**200 mg/L, UHC Treatment Standard**	**D025, UHC**	**0.77**	**5.6**	**Waste is below the characteristic limit, but exceeds the ww treatment standard. Therefore it is a UHC.**
Naphthalene	U (8)	UHC Treatment Standard	UHC	0.059	5.6	
2-Nitroaniline (o-nitroaniline)	U (6)	UHC Treatment Standard	UHC	0.27	14	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
E = Concentration exceeded the calibration range of the instrument.

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INEEL V-9 SVOC Analysis on liquid phase.

Constituents	Concentration ug/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
3-Nitroaniline (m-nitroaniline)	U (17)	None	NA	NA	NA	
4-Nitroaniline (p-nitroaniline)	U (4)	UHC Treatment Standard	UHC	0.028	28	
Nitrobenzene	U (9)	2.0 (D036) or UHC Treatment Standard	D036 or UHC	0.068	14	
2-Nitrophenol (o-nitrophenol)	U (7)	UHC Treatment Standard	UHC	0.028	13	
4-Nitrophenol (p-nitrophenol)	37	UHC Treatment Standard	UHC	0.12	29	
N-nitroso-dimethylamine	U (11)	UHC Treatment Standard	UHC	0.4	2.3	
N-nitroso-di-n-propylamine (Di-n-propylnitrosamine)	U (13)	UHC Treatment Standard	UHC	0.4	14	
N-nitrosodiphenylamine (Diphenylnitrosamine)	U (10)	UHC Treatment Standard	UHC	0.92	13	
Pentachlorophenol	U (13)	UHC Treatment Standard	UHC	0.089	7.4	
Phenanthrene	U (6)	UHC Treatment Standard	UHC	0.059	5.6	
Phenol	**100E**	**UHC Treatment Standard**	**UHC**	**0.039**	**6.2**	**Concentration is above for the wastewater treatment standards.**
Pyrene	U (12)	UHC Treatment Standard	UHC	0.067	8.2	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
E = Concentration exceeded the calibration range of the instrument.

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INEEL V-9 SVOC Analysis on liquid phase.

Constituents	Concentration ug/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Pyridine	U (10)	5.0 (D038) or UHC Treatment Standard	D038 or UHC	0.014	16	
Tributylphosphate	190E	None	NA	NA	NA	
1,2,4-Trichlorobenzene	U (7)	UHC Treatment Standard	UHC	0.055	19	
2,4,5-Trichorophenol	U (17)	44 (D041), UHC Treatment Standard	D041, UHC	0.18	7.4	
2,4,6-Trichlorophenol	U (10)	2 (D042), UHC Treatment Standard	D042, UHC	0.035	7.4	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
E = Concentration exceeded the calibration range of the instrument.

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INEEL V-9 Inorganic Analysis on liquid phase.

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Aluminum	U (0.236)	NA	NA	NA	NA	
Antimony	U (0.162)	UHC Treatment Standard	UHC	1.9	1.15 mg/L TCLP	
Arsenic	U (0.232)	5.0 (D004), UHC Treatment Standard	D004, UHC	1.4	5.0 mg/L TCLP	
Barium	1.02	100 mg/l (D005), UHC Treatment Standard	D005, UHC	1.2	21 mg/L TCLP	
Beryllium	0.065	UHC Treatment Standard	UHC	0.82	1.22 mg/L TCLP	Concentration is below both treatment standards.
Boron	37.6	NA	NA	NA	NA	
Cadmium	**1.9**	**1.0 (D006), UHC**	**D006, UHC**	**0.69**	**0.11 mg/L TCLP**	**Concentration exceeds the characteristic limit and both treatment standards.**
Calcium	90.6	NA	NA	NA	NA	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
B = Reported value is > to instrument detection limit but < contract required detection limit.
N = Spiked Sample
E = Estimate value due to interference.

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INEEL V-9 Inorganic Analysis on liquid phase.

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Chromium	1.46	5 (D007), UHC Treatment Standards	D007, UHC	2.77	0.60 mg/L TCLP	UHC for Non-wastewater
Cobalt	0.116 B	NA	NA	NA	NA	
Copper	2.98	NA	NA	NA	NA	
Iron	17.9	NA	NA	NA	NA	
Lead	**0.942**	**5.0 (D008), UHC Treatment Standard**	**D008, UHC**	**0.69**	**0.75 mg/L TCLP**	**Concentration exceeds both treatment standards therefore it is a UHC.**
Magnesium	208	NA	NA	NA	NA	
Manganese	23.5	NA	NA	NA	NA	
Mercury	**0.563**	**0.2 (D009), UHC Treatment Standard**	**D009, UHC**	**0.15**	**0.025 mg/L TCLP**	**Mercury exceeds the characteristic level, however a total concentration needs to be determined to determine appropriate nww treatment standard. Currently exceeds the ww treatment standard.**
Nickel	**13.8**	**UHC Treatment Standard**	**UHC**	**3.98**	**11 mg/L TCLP**	**Concentration exceeds both treatment standards therefore it is a UHC.**

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
B = Reported value is > to instrument detection limit but < contract required detection limit.
N = Spiked Sample
E = Estimate value due to interference.

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INEEL V-9 Inorganic Analysis on liquid phase.

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Potassium	8340	NA	NA	NA	NA	
Selenium	U (0.234)	1 (D010)	D010	0.82	5.7 mg/L TCLP	
Silicon	25 NE	NA	NA	NA	NA	
Silver	U (0.0315)	5 (D011), UHC Treatment Standard	D011, UHC	0.43	0.14 mg/L TCLP	
Sodium	3150	NA	NA	NA	NA	
Thallium	U (0.370)	UHC Treatment Standard	UHC	1.4	0.2 mg/L TCLP	The estimated value of 59 mg/L exceeds both treatment standards. Therefore, the waste must be treated prior to disposal.
Tin	U (0.116)	NA	NA	NA	NA	
Vanadium	U (0.022)	NA	NA	NA	NA	
Zinc	18.2	NA	NA	NA	NA	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
B = Reported value is > to instrument detection limit but < contract required detection limit.
N = Spiked Sample
E = Estimate value due to interference.

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INEEL V-9 Miscellaneous Analysis on liquid phase.

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Bromide	0.0592	None	NA	NA	NA	
Chloride	10.9	None	NA	NA	NA	
Fluoride	0.00144 B	None	NA	NA	NA	
Nitrate	0.0632	None	NA	NA	NA	
Nitrite	U (0.11)	None	NA	NA	NA	
Phosphate	0.00242 B	None	NA	NA	NA	
Sulfate	0.29	None	NA	NA	NA	
Total Organic Carbon	3.06	< 1%	NA	NA	NA	Wastewater is defined as < 1% TOC and < 1% TSS.
Total Halides	9.38	NA	NA	NA	NA	
Total Suspended Solids	1.59	<1%	NA	NA	NA	Wastewater is defined as < 1% TOC and < 1% TSS.
pH	7.89	≤ 2 or ≥ 12.5	None	NA	NA	

U = Not Detected (Detection limit in parenthesis).
B = Not defined in INEEL.
TOC = 3.06 mg/L = 3.06E-4 %, which is < 1%.TSS = 1.59 mg/L = 1.59 E-4% which is < 1%. Therefore, liquid phase is considered a wastewater.

INEEL V-9 PCB Analysis on liquid phase.

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable TSCA/RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Aroclor-1016	U (0.0054)		None	NA	NA	
Aroclor-1221	U (0.0054)	NA	NA	NA	NA	
Aroclor-1232	U (0.0054)	NA	NA	NA	NA	
Aroclor-1242	U (0.0054)	NA	NA	NA	NA	
Aroclor-1248	U (0.0054)	NA	NA	NA	NA	
Aroclor-1254	U (0.090)	NA	NA	NA	NA	
Aroclor-1260	0.036 J	NA	NA	NA	NA	
Total Concentration	0.036 J	50 mg/kg for TSCA, UHC Treatment Standard for RCRA	None	0.1	10	This waste is not regulated under TSCA and it is below the UHC treatment standard level. Therefore, no PCB treatment is required prior to disposal.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

INEEL OU 1-10 Site TSF-18, Tank V-9
Preliminary Sludge Chemical Characterization Summary

- The sludge phase of the waste associated with this tank is considered a non-wastewater for purposes of complying with the Land Disposal Restrictions. This determination as well as the hazardous waste determination listed below is preliminary based on existing analytical data.

- **Hazardous Waste Determination :**Highest concentrations detected are reported.

The RCRA Waste codes that apply to this waste are as follows:

Constituent	Concentration Detected in Waste (mg/kg)	Regulatory Limit (mg/L)	Applicable Waste Code	LDR Treatment Standard for non-wastewater (mg/kg)
Barium	25.8 mg/L (theoretical)	100 (21 as a UHC)	UHC	21 mg/L
Beryllium	1.29 mg/L (theoretical)	1.22 as a UHC	UHC	1.22 mg/L
Cadmium	1.6 mg/L (theoretical)	1.0	D006	0.69 mg/L
Chromium	55 mg/L (theoretical)	5.0	D007	0.6 mg/L
Lead	29.6 mg/L (theoretical)	5.0	D008	0.75 mg/L
Mercury	105.5 mg/L (theoretical)	0.2	D009	Total concentration (2110 mg/kg) is >260 mg/kg, IMERC or RMERC are required methods of treatment.
Nickel	21.8 mg/L (theoretical)	11 as a UHC	UHC	11 mg/L
Silver	32.9 mg/L (theoretical)	5	D011	0.14 mg/L
Thallium	0.39 mg/L (theoretical)	0.2 as a UHC	UHC	0.2 mg/L
Benzene	ND @ 250 mg/kg or 12.5 mg/L (theoretical)	0.5	D018	10
Bis(2-ethyl hexyl) phthalate	1100	28 mg/kg as a UHC	UHC	28
Bromomethane	140 DJ	15 mg/kg as a UHC	UHC	15
Chloroform	ND @ 120 mg/kg or 6 mg/L (theoretical)	6.0	D022	6
Chloromethane	80 DJ	30 mg/kg as a UHC	UHC	30

Constituent	Concentration Detected in Waste (mg/kg)	Regulatory Limit (mg/L)	Applicable Waste Code	LDR Treatment Standard for non-wastewater (mg/kg)
1,2-Dichlorobenzene (o-dichlorobenzene)	350	None if F-listed or 6 mg/kg as a UHC	UHC	6
1,3-Dichlorobenzene	16 J	6 mg/kg as a UHC	UHC	6
1,4-Dichlorobenzene	90 J	6 mg/kg as a UHC	UHC	6
1,2-Dichloroethane	ND @ 380 mg/kg or 19 mg/L (theoretical)	0.5	D028	6
1,1-Dichloroethene	ND @ 120 mg/kg or 6 mg/L (theoretical)	0.7	D029	6
2,4-Dimethylphenol	270	14 mg/kg as a UHC	UHC	14
2-Methylphenol (o-cresol)	500	200 mg/L (5.6 as a UHC)	UHC	5.6
4-Methylphenol (p-cresol)	260	200 mg/L (5.6 as a UHC)	UHC	5.6
Naphthalene	44 J	5.6 mg/kg as a UHC	UHC	5.6
Phenanthrene	21 J	5.6 mg/kg as a UHC	UHC	5.6
Phenol	71 J	6.2 mg/kg as a UHC	UHC	6.2
Pyridine	ND @ 130 mg/kg or 6.5 mg/L (theoretical)	5.0	D038	16
1,2,4-Trichlorobenzene	32 J	19 mg/kg as a UHC	UHC	19
Tetrachloroethene	600 (or 30 mg/L)	0.7 mg/L as a D039, None if F-listed, or 6 as a UHC	D039	6
1,1,1-Trichloroethane	2600 D	None if F-listed or 6 as a UHC	UHC	6
Trichloroethene	22000 (or 1100 mg/L)	0.5 mg/L as a D040, None if F-listed, or 6 as a UHC	F001	6
Vinyl chloride	ND @ 120 mg/kg or 0.2 mg/L (theoretical)	0.2	D043	6
Total PCB Concentration	310 P	50 mg/kg for TSCA and UHC Treatment Standard	TSCA Regulated and UHC	< 50 for TSCA and10 for RCRA

- **UHC** = Underlying Hazardous Constituent.
  IMERC = Incineration of wastes containing organics and mercury in a unit operated in accordance with the technical operating requirements of 40 CFR 264 Subpart O.
  RMERC = Retorting or roasting in a thermal processing unit capable of volatilizing mercury and subsequently condensing the volatilized mercury for recovery. (See 40 CFR 268.42, Table 1 for specifics.)
  ND = Not Detected
  D = Dilution factor of 10000.
  J = Estimated Value.
  P = > 25% difference in detected concentration between two GC columns; lower value reported.

- The inorganic analysis performed on the sludge phase of this waste was reported in a total concentration (mg/kg) and not in a TCLP extract concentration (mg/L). Therefore, to evaluate the regulatory status of this solid, the total constituent concentration is divided by 20, creating the maximum theoretical leachate concentration (reported in the table above), which is then compared to the applicable regulatory limit. The division factor reflects the 20-to-1 ratio of extraction fluid to solid used in the TCLP test method.

- The detection limits for a majority of the VOCs were above the non-wastewater treatment standards as well as the characteristic limit for certain constituents. LDR guidance suggests that in cases where detection limits are above either the characteristic limit or treatment standards, the generator may use his knowledge of the waste, in lieu of analytical results, to certify that the constituents are not present in the waste. However, since this waste will not be re-analyzed for these constituentsthe following VOCs are also assumed to be present in the waste at the detection limit value (see attached tables for concentrations) and identified as underlying hazardous constituents (VOCs with detection limits exceeding characteristic limits have been identified in the above table.): Acetone, Bromodichloromethane, Bromoform, 2-Butanone, Carbon disulfide, Carbon Tetrachloride, Chlorobenzene, Chloroethane, , Dibromochloromethane, 1,1-Dichloroethane, 1,2-Dichloroethene, trans-1,2-Dichloroethene, 1,2-Dichloropropane, cis-1,3-Dichloropropene, trans-1,3-Dichloropropene, Ethylbenzene, 4-Methyl-2-pentanone, Methylene chloride, 1,1,2,2-Tetrachloroethane, Toluene, 1,1,2-Trichloroethane, , and Xylene.

- The detection limits for a majority of the SVOCs were also above the non-wastewater treatment standards, as well as the characteristic limit for one constituent (Pyridine). Again as previously stated, LDR guidance suggests that in cases where detection limits are above either the characteristic limit or the treatment standard, the generator may use his/her knowledge of the waste, in lieu of analytical results, to certify that these constituents are not present in the waste. However, since this waste will not be reanalyzed for these constituents the following SVOCs are also assumed to be present in the waste at the detection limit value (see attached tables for concentrations) and identified as underlying hazardous constituents: Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,I)perylene, Benzo(k)fluoranthene, Butylbenzylphthalate, Bis (2-

chloroethoxy) methane, Bis (2-chloroethyl) ether, Bis (2-chloroisopropyl) ether, 4-Bromophenyl-phenylether, Chrysene, 4-Chloroaniline, 4-Chloro-3-Methylphenol, 2-Chloronaphthalene, 2-Chlorophenol, Dibenz(a,h)anthracene, 3,3-Dichlorobenzidine, 2,4-Dichlorophenol, Diethylphthalate, Dimethylphthalate, Di-n-butylphthalate, Di-n-octylphthalate, 2,4-Dinitrophenol, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, Fluoranthene, Fluorene, Hexachlorobenzene, Hexachlorobutadiene, Hexachlorocyclopentadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, 2-Nitroaniline, 4-Nitroaniline, Nitrobenzene, 2-Nitrophenol, 4-Nitrophenol, N-nitroso-dimethylamine, N-nitroso-di-n-propylamine, N-nitrosodiphenylamine, Pentachlorophenol, Pyrene, 2,4,5-Trichlorophenol, and 2,4,6-Trichlorophenol.

- Based on a review of the analytical data provided by INEEL, this waste is considered a hazardous waste as well as TSCA regulated due to the presence of PCBs > 50 ppm. This waste requires incineration based on 40 CFR 761 for the presence of PCBs and any form of thermal treatment for the presence of the organic constituents, followed-by stabilization of the ash for the inorganic constituents.

- **Recommendation:** The physical form or phase of the waste to be treated and/or disposed should be the same form or phase described above.

  Since this waste will require some form of thermal treatment due to the presence of organics, the waste acceptance criteria of possible treatment facilities should also be considered.

INEEL V-9 VOC Analysis on Sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Carbon tetrachloride	U (120) D	Treatment standard limit if UHC	UHC	0.057	6	The 120 mg/kg detection limit exceeds the nww treatment standard.
Chlorobenzene	U (120) D	100 mg/l (D021) or treatment standard limit if UHC	D021 or UHC	0.057	6	The 120 mg/kg detection limit exceeds the nww treatment standard. Using 120 mg/kg, the theoretical leachate value would be 6 mg/L which also exceeds the ww treatment standard but it is below the characteristic limit.
Chloroethane	U (250) D	Treatment standard limit if UHC	UHC	0.27	6	The 250 mg/kg detection limit exceeds the nww treatment standard.
Chloroform	U (120) D	6 mg/l (D022) or treatment standard limit if UHC	D022 or UHC	0.046	6	The 120 mg/kg detection limit exceeds the nww treatment standard. Using 120 mg/kg, the theoretical leachate value would be 6 mg/L which also exceeds the ww treatment standard. This detection limit is also at the characteristic limit, therefore it is uncertain if this waste is characteristic.
Chloromethane	**80 DJ**	**Treatment standard limit if UHC**	**UHC**	**0.19**	**30**	**The 80 mg/kg concentration exceeds the nww treatment standard. Therefore, this constituent is a UHC.**
Dibromochloromethane (Chlorodibromomethane)	U (120) D	Treatment standard limit if UHC	UHC	0.057	15	The 120 mg/kg detection limit exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
D = Dilution factor of 10000.

INEEL V-9 VOC Analysis on Sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
1,1-Dichloroethane	U (50) D	Treatment standard limit if UHC	UHC	0.059	6	The 50 mg/kg detection limit exceeds the nww treatment standard.
1,2-Dichloroethane	U (380)	0.5 mg/l (D028), or treatment standard limit if UHC	D028 or UHC	0.21	6	The 380 mg/kg detection limit exceeds the nww treatment standard. Using 380 mg/kg, the theoretical leachate value is 19 mg/L which also exceeds the ww treatment standard and the characteristic limit.
1,1-Dichloroethene	U (120) D	0.7 mg/l (D029) or treatment standard limit if UHC	D029 or UHC	0.025	6	The 120 mg/kg detection limit exceeds the nww treatment standard. Using 120 mg/kg, the theoretical leachate value would be 6 mg/L which also exceeds the ww treatment standard and the characteristic limit.
1,2-Dichloroethene (cis-Dichloroethene)	U (110) D	NA	NA	NA	NA	
trans-1,2-Dichloroethene	U (88) D	Treatment standard limit if UHC	UHC	0.054	30	The 88 mg/kg detection limit exceeds the nww treatment standard.
1,2-Dichloropropane	U (250) D	Treatment standard limit if UHC	UHC	0.85	18	The 250 mg/kg detection limit exceeds the nww treatment standard.
cis-1,3-Dichloropropene	U (120) D	Treatment standard limit if UHC	UHC	0.036	18	The 120 mg/kg detection limit exceeds the nww treatment standard. Using 120 mg/kg, the theoretical leachate value would be 6 mg/L which also exceeds the ww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
D = Dilution factor of 10000.

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INEEL V-9 VOC Analysis on Sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
trans-1,3-Dichloropropene	U (250) D	Treatment standard limit if UHC	UHC	0.036	18	The 250 mg/kg detection limit exceeds the nww treatment standard.
Ethylbenzene	U (120) D	Treatment standard limit if UHC	UHC	0.057	10	The 120 mg/kg detection limit exceeds the nww treatment standard.
2-Hexanone (Methyl n-butyl ketone)	U (500) D	NA	NA	NA	NA	
4-Methyl-2-pentanone (MIK)	U (120) D	Treatment standard limit if UHC	UHC	0.14	33	The 120 mg/kg detection limit exceeds the nww treatment standard.
Methylene chloride	U (250) D	Treatment standard limit if UHC	UHC	0.089	30	The 250 mg/kg detection limit exceeds the nww treatment standard.
Styrene	U (250) D	NA	NA	NA	NA	
1,1,2,2-Tetrachloroethane	U (120) D	Treatment standard limit if UHC	UHC	0.057	6	The 120 mg/kg detection limit exceeds the nww treatment standard.
Tetrachloroethene	**600**	**0.7 mg/l (D039) or treatment standard limit if UHC**	**D039 or UHC**	**0.056**	**6**	**The 600 mg/kg concentration exceeds the nww treatment standard. Using 600 mg/kg, the theoretical leachate value would be 30 mg/L which also exceeds the ww treatment standard and the characteristic limit.**
Toluene	U (250) D	Treatment standard limit if UHC	UHC	0.08	10	The 250 mg/kg detection limit exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
D = Dilution factor of 10000.

INEEL V-9 VOC Analysis on Sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
1,1,1-Trichloroethane	**2600 D**	**Treatment standard limit if UHC**	**UHC**	**0.054**	**6**	**The 2600 mg/kg concentration exceeds the nww treatment standard.**
1,1,2-Trichloroethane	U (120) D	Treatment standard limit if UHC	UHC	0.054	6	The 120 mg/kg detection limit exceeds the nww treatment standard.
Trichloroethene	**22000**	**None if listed**	**F001**	**0.054**	**6**	**The 22000 mg/kg concentration exceeds the nww treatment standard. Using 22000 mg/kg, the theoretical leachate value would be 1100 mg/L which also exceeds the ww treatment standard.**
Vinyl chloride	U (120) D	0.2 mg/l (D043), orTreatment standard limit if UHC	D043 or UHC	0.27	6	The 120 mg/kg detection limit exceeds the nww treatment standard. Using 120 mg/kg, the theoretical leachate value would be 6 mg/L which also exceeds the ww treatment standard and the characterisitic limit.
Xylene (ortho)	U (120) D	NA	NA	NA	NA	
Xylene (total meta and para)	U (250) D	Treatment standard limit if UHC	UHC	0.32	30	The 250 mg/kg detection limit exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
D = Dilution factor of 10000.

INEEL V-9 SVOC Analysis on Sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Acenaphthene	U (130)	UHC Treatment Standard	UHC	0.059	3.4	130 mg/kg detection limit exceeds the nww treatment standard.
Acenaphthylene	U (130)	UHC Treatment Standard	UHC	0.059	3.4	130 mg/kg detection limit exceeds the nww treatment standard.
Anthracene	U (130)	UHC Treatment Standard	UHC	0.059	3.4	130 mg/kg detection limit exceeds the nww treatment standard.
Benzo (a) anthracene	U (130)	UHC Treatment Standard	UHC	0.059	3.4	130 mg/kg detection limit exceeds the nww treatment standard.
Benzo (a) pyrene	U (130)	UHC Treatment Standard	UHC	0.061	3.4	130 mg/kg detection limit exceeds the nww treatment standard.
Benzo (b) fluoranthene	U (130)	UHC Treatment Standard	UHC	0.11	6.8	130 mg/kg detection limit exceeds the nww treatment standard.
Benzo (g,h,I) perylene	U (130)	UHC Treatment Standard	UHC	0.0055	1.8	130 mg/kg detection limit exceeds the nww treatment standard.
Benzo (k) fluoranthene	U (130)	UHC Treatment Standard	UHC	0.11	6.8	130 mg/kg detection limit exceeds the nww treatment standard.
Butylbenzylphthalate	U (130)	UHC Treatment Standard	UHC	0.017	28	130 mg/kg detection limit exceeds the nww treatment standard.
Bis (2-chloroethoxy)methane	U (130)	UHC Treatment Standard	UHC	0.036	7.2	130 mg/kg detection limit exceeds the nww treatment standard.
Bis (2-chloroethyl)ether	U (130)	UHC Treatment Standard	UHC	0.033	6	130 mg/kg detection limit exceeds the nww treatment standard.
Bis (2-chloroisopropyl) ether	U (130)	UHC Treatment Standard	UHC	0.055	7.2	130 mg/kg detection limit exceeds the nww treatment standard.
Bis (2-ethylhexyl) phthalate	**1100**	**UHC Treatment Standard**	**UHC**	**0.28**	**28**	**1100 mg/kg concentration exceeds the nww treatment standard. Therefore this constituent is a UHC.**

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

INEEL V-9 SVOC Analysis on Sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
4-Bromophenyl-phenylether	U (130)	UHC Treatment Standard	UHC	0.055	15	130 mg/kg detection limit exceeds the nww treatment standard.
Carbozole (or Carbazole)	U (130)	None	NA	NA	NA	
Chrysene	U (130)	UHC Treatment Standard	UHC	0.059	3.4	130 mg/kg detection limit exceeds the nww treatment standard.
4-Chloroaniline (p-chloroaniline)	U (130)	UHC Treatment Standard	UHC	0.46	16	130 mg/kg detection limit exceeds the nww treatment standard.
4-Chloro-3-Methylphenol (p-chloro-m-cresol)	U (130)	UHC Treatment Standard	UHC	0.018	14	130 mg/kg detection limit exceeds the nww treatment standard.
2-Chloronaphthalene	U (130)	UHC Treatment Standard	UHC	0.055	5.6	130 mg/kg detection limit exceeds the nww treatment standard.
4-Chlorophenyl-phenylether	U (130)	None	NA	NA	NA	
2-Chlorophenol	U (130)	UHC Treatment Standard	UHC	0.044	5.7	130 mg/kg detection limit exceeds the nww treatment standard.
Dibenz(a,h)anthracene	U (130)	UHC Treatment Standard	UHC	0.055	8.2	130 mg/kg detection limit exceeds the nww treatment standard.
Dibenzofuran	U (130)	None	NA	NA	NA	
1,2-Dichlorobenzene (o-dichlorobenzene)	**350**	**UHC Treatment Standard**	**UHC**	**0.088**	**6**	**350 mg/kg concentration exceeds the nww treatment standard. Therefore this constituent is a UHC or an F-listed constituent.**
1,3-Dichlorobenzene (m-dichlorobenzene)	**16 J**	**UHC Treatment Standard**	**UHC**	**0.036**	**6**	**16 mg/kg concentration exceeds the nww treatment standard. Therefore this constituent is a UHC.**

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

INEEL V-9 SVOC Analysis on Sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
1,4-Dichlorobenzene (p-dichlorobenzene)	**90 J**	**7.5 (D027), UHC Treatment Standard**	**D027, UHC**	**0.09**	**6**	**90 mg/kg concentration exceeds the nww treatment standard. Using 90 mg/kg, the theoretical leachate value is 4.5 mg/L which is below the characterisitic limit. However, this constituent is a UHC.**
3,3-Dichlorobenzidine (Dibenz (a,h) anthracene)	U (130)	UHC Treatment Standard	UHC	0.055	8.2	130 mg/kg detection limit exceeds the nww treatment standard.
2,4-Dichlorophenol	U (130)	UHC Treatment Standard	UHC	0.044	14	130 mg/kg detection limit exceeds the nww treatment standard.
Diethylphthalate	U (130)	UHC Treatment Standard	UHC	0.2	28	130 mg/kg detection limit exceeds the nww treatment standard.
2,4-Dimethylphenol	**270**	**UHC Treatment Standard**	**UHC**	**0.036**	**14**	**270 mg/kg concentration exceeds the nww treatment standard. Therefore this constituent is a UHC.**
Dimethylphthalate	U (130)	UHC Treatment Standard	UHC	0.047	28	130 mg/kg detection limit exceeds the nww treatment standard.
Di-n-butylphthalate	15 J	UHC Treatment Standard	UHC	0.057	28	15 mg/kg concentration is below the nww treatment standard.
Di-n-octylphthalate	U (130)	UHC Treatment Standard	UHC	0.017	28	130 mg/kg detection limit exceeds the nww treatment standard.
4,6-Dinitro-2-methylphenol	U (670)	None	NA	NA	NA	
2,4-Dinitrophenol	U (670)	UHC Treatment Standard	UHC	0.12	160	670 mg/kg detection limit exceeds the nww treatment standard.
2,4-Dinitrotoluene	U (130)	UHC Treatment Standard	UHC	0.32	140	130 mg/kg detection limit exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

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INEEL V-9 SVOC Analysis on Sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
2,6-Dinitrotoluene	U (130)	UHC Treatment Standard	UHC	0.55	28	130 mg/kg detection limit exceeds the nww treatment standard.
Fluoranthene	U (130)	UHC Treatment Standard	UHC	0.068	3.4	130 mg/kg detection limit exceeds the nww treatment standard.
Fluorene	U (130)	UHC Treatment Standard	UHC	0.059	3.4	130 mg/kg detection limit exceeds the nww treatment standard.
Hexachlorobenzene	U (130)	0.13 (D032), UHC Treatment Standard	D032, UHC	0.055	10	130 mg/kg detection limit exceeds the nww treatment standard.
Hexachlorobutadiene (Hexachloro-1,3-butadiene	U (130)	0.5 (D033)UHC Treatment Standard	D033, UHC	0.055	5.6	130 mg/kg detection limit exceeds the nww treatment standard.
Hexachlorocyclopentadiene	U (130)	UHC Treatment Standard	UHC	0.057	2.4	130 mg/kg detection limit exceeds the nww treatment standard.
Hexachloroethane	U (130)	UHC Treatment Standard	UHC	0.055	30	130 mg/kg detection limit exceeds the nww treatment standard.
Indeno (1,2,3-cd) pyrene	U (130)	UHC Treatment Standard	UHC	0.0055	3.4	130 mg/kg detection limit exceeds the nww treatment standard.
Isophorone	U (130)	None	NA	NA	NA	
2-Methylnaphthalene	110 J	None	NA	NA	NA	
2-Methylphenol (o-cresol)	**500**	**200 mg/L or UHC treatment standard**	**D023, UHC**	**0.11**	**5.6**	**500 mg/kg concentration exceeds the nww treatment standard. Using 500 mg/kg, the theoretical leachate value is 25 mg/L which is below the characterisitic limit.Therefore it is a UHC.**

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

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INEEL V-9 SVOC Analysis on Sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
4-Methylphenol (p-cresol)	**260**	**200 mg/L or UHC treatment standard**	**D025, UHC**	**0.77**	**5.6**	**260 mg/kg concentration exceeds the nww treatment standard. Using 260 mg/kg, the theoretical leachate value is 13 mg/L which is below the characterisitic limit.Therefore it is a UHC.**
Naphthalene	**44 J**	**UHC Treatment Standard**	**UHC**	**0.059**	**5.6**	**4 mg/kg concentration exceeds the nww treatment standard. Therefore it is a UHC.**
2-Nitroaniline (o-nitroaniline)	U (670)	UHC Treatment Standard	UHC	0.27	14	670 mg/kg detection limit exceeds the nww treatment standard.
3-Nitroaniline (m-nitroaniline)	U (670)	None	NA	NA	NA	
4-Nitroaniline (p-nitroaniline)	U (670)	UHC Treatment Standard	UHC	0.028	28	670 mg/kg detection limit exceeds the nww treatment standard.
Nitrobenzene	U (130)	2.0 (D036) or UHC Treatment Standard	D036 or UHC	0.068	14	130 mg/kg detection limit exceeds the nww treatment standard.
2-Nitrophenol (o-nitrophenol)	U (130)	UHC Treatment Standard	UHC	0.028	13	130 mg/kg detection limit exceeds the nww treatment standard.
4-Nitrophenol (p-nitrophenol)	U (670)	UHC Treatment Standard	UHC	0.12	29	670 mg/kg detection limit exceeds the nww treatment standard.
N-nitroso-dimethylamine	NA	UHC Treatment Standard	UHC	0.4	2.3	
N-nitroso-di-n-propylamine (Di-n-propylnitrosamine)	U (130)	UHC Treatment Standard	UHC	0.4	14	130 mg/kg detection limit exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

INEEL V-9 SVOC Analysis on Sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
N-nitrosodiphenylamine (Diphenylnitrosamine)	U (130)	UHC Treatment Standard	UHC	0.92	13	130 mg/kg detection limit exceeds the nww treatment standard.
Pentachlorophenol	U (670)	UHC Treatment Standard	UHC	0.089	7.4	670 mg/kg detection limit exceeds the nww treatment standard.
Phenanthrene	**21 J**	**UHC Treatment Standard**	**UHC**	**0.059**	**5.6**	**21 mg/kg concentration exceeds the nww treatment standard. Therefore it is a UHC.**
Phenol	**71 J**	**UHC Treatment Standard**	**UHC**	**0.039**	**6.2**	**71 mg/kg concentration exceeds the nww treatment standard. Therefore it is a UHC.**
Pyrene	U (130)	UHC Treatment Standard	UHC	0.067	8.2	130 mg/kg detection limit exceeds the nww treatment standard.
Pyridine	U (130)	5.0 (D038) or UHC Treatment Standard	D038 or UHC	0.014	16	130 mg/kg detection limit exceeds the nww treatment standard. Using 130 mg/kg, the theoretical leachate value is 6.5 mg/L which is above the characterisitic limit.
Tributylphosphate	NA	None	NA	NA	NA	
1,2,4-Trichlorobenzene	**32 J**	**UHC Treatment Standard**	**UHC**	**0.055**	**19**	**32 mg/kg concentration exceeds the nww treatment standard. Therefore this is a UHC.**
2,4,5-Trichorophenol	U (670)	44 (D041), UHC Treatment Standard	D041, UHC	0.18	7.4	670 mg/kg detection limit exceeds the nww treatment standard.
2,4,6-Trichlorophenol	U (130)	2 (D042), UHC Treatment Standard	D042, UHC	0.035	7.4	130 mg/kg detection limit exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

INEEL V-9 Inorganic Analysis on sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Aluminum	2290	NA	NA	NA	NA	
Antimony	22.2 B N	UHC Treatment Standard	UHC	1.9	1.15 mg/L TCLP	Using 22.2 mg/kg, the theoretical leachate value is 1.11 mg/L .
Arsenic	U (3.7)	5.0 (D004), UHC Treatment Standard	D004, UHC	1.4	5.0 mg/L TCLP	
Barium	**515**	**100 mg/l (D005), UHC Treatment Standard**	**D005, UHC**	**1.2**	**21 mg/L TCLP**	**Using 515 mg/kg, the theoretical leachate value is 25.8 mg/L which is above the nww treatment standard. Therefore, barium is a UHC.**
Beryllium	**25.7**	**UHC Treatment Standard**	**UHC**	**0.82**	**1.22 mg/L TCLP**	**Using 25.7 mg/kg, the theoretical leachate value is 1.29 mg/L which is above the nww treatment standard. Therefore, beryllium is a UHC.**
Boron	47.3	NA	NA	NA	NA	
Cadmium	**30.9**	**1.0 (D006), UHC**	**D006, UHC**	**0.69**	**0.11 mg/L TCLP**	**Using 30.9 mg/kg, the theoretical leachate value is 1.55 mg/L which is above the characteristic limit.**
Calcium	5660	NA	NA	NA	NA	
Chromium	**1100**	**5 (D007), UHC Treatment Standards**	**D007, UHC**	**2.77**	**0.60 mg/L TCLP**	**Using 1100 mg/kg, the theoretical leachate value is 55 mg/L which is above the characteristic limit.**
Cobalt	5.8	NA	NA	NA	NA	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
B = Reported value is > to instrument detection limit but < contract required detection limit.
N = Spiked Sample
E = Estimate value due to interference.

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INEEL V-9 Inorganic Analysis on sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Constituents	**Concentration mg/L**	**Applicable Regulatory Limit**	**Applicable RCRA Waste Code**	**LDR Treatment Standard for wastewater in mg/l**	**LDR Treatment Standard for non-wastewater in mg/kg**	**Comments**
Copper	43.1	NA	NA	NA	NA	
Iron	9710	NA	NA	NA	NA	
Lead	**592 N**	**5.0 (D008), UHC Treatment Standard**	**D008, UHC**	**0.69**	**0.75 mg/L TCLP**	**Using 592 mg/kg, the theoretical leachate value is 29.6 mg/L which is above the characteristic limit.**
Magnesium	1670	NA	NA	NA	NA	
Manganese	825	NA	NA	NA	NA	
Mercury	**2110**	**0.2 (D009), UHC Treatment Standard**	**D009, UHC**	**0.15**	**0.025 mg/L TCLP**	**Using 2110 mg/kg, the theoretical leachate value is 105.5 mg/L which is above the characteristic limit. Note: Treatment may require IMERC or RMERC since concentration exceeds 260 mg/kg. Verify first if waste would fail TCLP.**

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
B = Reported value is > to instrument detection limit but < contract required detection limit.
N = Spiked Sample
E = Estimate value due to interference.

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INEEL V-9 Inorganic Analysis on sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Nickel	**435**	**UHC Treatment Standard**	**UHC**	**3.98**	**11 mg/L TCLP**	**Using 435 mg/kg, the theoretical leachate value is 21.8 mg/L which is above the nww treatment standard limt. This is a UHC.**
Potassium	10300	NA	NA	NA	NA	
Selenium	U (4.1) N	1 (D010)	D010	0.82	5.7 mg/L TCLP	
Silicon	292 N	NA	NA	NA	NA	
Silver	**657**	**5 (D011), UHC Treatment Standard**	**D011, UHC**	**0.43**	**0.14 mg/L TCLP**	**Using 657 mg/kg, the theoretical leachate value is 32.9 mg/L which is above the characteristic limit.**
Sodium	1950 E	NA	NA	NA	NA	
Thallium	**7.8 B**	**UHC Treatment Standard**	**UHC**	**1.4**	**0.2 mg/L TCLP**	**Using 7.8 mg/kg, the theoretical leachate value is 0.39 mg/L which is above the nww treatment standard limt. This is a UHC.**
Tin	33.4	NA	NA	NA	NA	
Vanadium	6.8	NA	NA	NA	NA	
Zinc	1790	NA	NA	NA	NA	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
B = Reported value is > to instrument detection limit but < contract required detection limit.
N = Spiked Sample
E = Estimate value due to interference.

INEEL V-9 PCB Analysis on sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable TSCA/RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Aroclor-1016	U (24)		None	NA	NA	
Aroclor-1221	U (47)	NA	NA	NA	NA	
Aroclor-1232	U (24)	NA	NA	NA	NA	
Aroclor-1242	U (24)	NA	NA	NA	NA	
Aroclor-1248	U (24)	NA	NA	NA	NA	
Aroclor-1254	U (24)	NA	NA	NA	NA	
Aroclor-1260	310 P	NA	NA	NA	NA	
Total Concentration	310 P	50 mg/kg for TSCA, UHC Treatment Standard for RCRA	None	0.1	10	This waste is regulated under TSCA and it may be subject to the UHC treatment standard level. Therefore, this waste must be incinerated prior to disposal for purposes of PCBs.

U = Not Detected (Detection limit in parenthesis).
P = > 25% difference in detected concentration between two GC columns; lower value reported.

INEEL V-9 Miscellaneous Analysis on sludge.

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Bromide	12.3	None	NA	NA	NA	
Chloride	503	None	NA	NA	NA	
Fluoride	7.41	None	NA	NA	NA	
Nitrate	36.7	None	NA	NA	NA	
Nitrite	7.11	None	NA	NA	NA	
Phosphate	1.09 B	None	NA	NA	NA	
Sulfate	45.3	None	NA	NA	NA	
Total Organic Carbon	12924.7 mg/kg	< 1%	NA	NA	NA	Wastewater is defined as < 1% TOC and < 1% TSS.
Total Halides	NP	NA	NA	NA	NA	
Total Suspended Solids	NA	<1%	NA	NA	NA	Wastewater is defined as < 1% TOC and < 1% TSS.
pH	7.7	≤ 2 or ≥ 12.5	None	NA	NA	
% Water	67.5					

U = Not Detected (Detection limit in parenthesis).
B = Not defined in INEEL.
NP = Analysis not performed.
TOC = 12924.7 mg/kg = 1.29 %, which is > 1%. This sludge is considered a non-wastewater.

INEEL OU 1-10 Site TSF-09, Sand Filter
Preliminary Sand Filter Chemical Characterization Summary

- The solid phase of the waste associated with the concrete sand filter is considered a non-wastewater for purposes of complying with the Land Disposal Restrictions. This determination as well as the hazardous waste determination listed below is preliminary based on existing analytical data.

- **Hazardous Waste Determination:** Highest concentrations detected are reported.

The RCRA Waste codes that apply to this waste are as follows:

Constituent	Concentration Detected in Waste (mg/kg)	Regulatory Limit (mg/L)	Applicable Waste Code	LDR Treatment Standard for non-wastewater (mg/kg)
Cadmium	121 mg/kg or 0.3853 mg/L TCLP	1.0	UHC	0.11 mg/L
Hexachlorobutadiene	0.1 mg/L TCLP	0.5	UHC	No total data to use to determine if UHC
Trichloroethene	0.005 mg/L TCLP	0.5mg/L as a D040, None if F-listed, or 6 as a UHC	F001	6
Total PCB Concentration	290.0	50 mg/kg for TSCA and UHC Treatment Standard	TSCA Regulated and UHC	< 50 for TSCA and 10 for RCRA
UHCs (various)	See attached tables for concentrations detected for the sand filter and applicable treatment standards.			

- **UHC** = Underlying Hazardous Constituent.

- The inorganic analysis performed on this waste was reported in a total concentration (mg/kg) and in a TCLP extract concentration (mg/L). Although high total concentrations are reported in this waste for many of the inorganics, the TCLP extract concentrations were below regulatory limits as a characteristic.

- The detection limits for all the VOCs were below the non-wastewater treatment standards. In addition, the TCLP results for the characteristic constituents were

below the regulatory limit; therefore, none of the VOCs are characteristic nor are any identified as underlying hazardous constituents.

- The detection limits for a majority of the SVOCs were above the non-wastewater treatment standards but results for TCLP were below characteristic regulatory limits. Again as previously stated, LDR guidance suggests that in cases where detection limits are above either the characteristic limit or the treatment standard, the generator may use his/her knowledge of the waste, in lieu of analytical results, to certify that these constituents are not present in the waste. However, since this waste will not be reanalyzed for these constituents the following SVOCs are also assumed to be present in the waste as underlying hazardous constituents at the detection limit value *(see attached tables for concentrations) and identified as underlying hazardous constituents: Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,l)perylene, Benzo(k)fluoranthene, Butylbenzylphthalate, Bis (2-chloroethoxy) methane, Bis (2-chloroethyl) ether, Bis (2-chloroisopropyl) ether, Bis(2-ethlyexyl)phthalate, 4-Bromophenyl-phenylether, Chrysene, 4-Chloroaniline, 4-Chloro-3-Methylphenol, 2-Chloronaphthalene, 2-Chlorophenol, Dibenz(a,h)anthracene,1,2-Dichlorobezene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene,3,3-Dichlorobenzidiene, 2,4-Dichlorophenol,Diethylphthalate, 2,4-Dichlorophenol, Dimethylphthalate, Di-n-butylphthalate, Di-n-octylphthalate, 2,4-Dinitrophenol, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, Fluoranthene, Fluorene, Hexachlorobenzene, Hexachlorobutadiene, Hexachlorocyclopentadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene,2-Methylphenol, 4-Methylphenol, Napthalene, 2-Nitroaniline, 4-Nitroaniline, Nitrobenzene, 2-Nitrophenol, 4-Nitrophenol, N-nitroso-dimethylamine, N-nitroso-di-n-propylamine, N-nitrosodiphenylamine, Pentachlorophenol, Phenanthrene, Phenol, Pyrene, Pyridine, 2,4,5-Trichlorophenol, and 2,4,6-Trichlorophenol.*

- Based on a review of the analytical data provided by INEEL, this waste is considered a listed hazardous waste with underlying hazardous constituents as well as TSCA regulated due to the presence of PCBs > 50 ppm. This waste requires incineration based on 40 CFR 761 for the presence of PCBs and any form of thermal treatment for the presence of the organic constituents, followed-by stabilization of the ash for the inorganic constituents.

- **Recommendation:** The physical form or phase of the waste to be treated and/or disposed should be the same form or phase as described above.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Acenaphthene	U (55)	UHC Treatment Standard	UHC	0.059	3.4	55 mg/kg detection limit exceeds the nww treatment standard.
Acenaphthylene	U (55)	UHC Treatment Standard	UHC	0.059	3.4	55 mg/kg detection limit exceeds the nww treatment standard.
Anthracene	U (55)	UHC Treatment Standard	UHC	0.059	3.4	55 mg/kg detection limit exceeds the nww treatment standard.
Benzo (a) anthracene	U (55)	UHC Treatment Standard	UHC	0.059	3.4	55 mg/kg detection limit exceeds the nww treatment standard.
Benzo (a) pyrene	U (55)	UHC Treatment Standard	UHC	0.061	3.4	55 mg/kg detection limit exceeds the nww treatment standard.
Benzo (b) fluoranthene	U (55)	UHC Treatment Standard	UHC	0.11	6.8	55 mg/kg detection limit exceeds the nww treatment standard.
Benzo (g,h,I) perylene	U (55)	UHC Treatment Standard	UHC	0.0055	1.8	55 mg/kg detection limit exceeds the nww treatment standard.
Benzo (k) fluoranthene	U (55)	UHC Treatment Standard	UHC	0.11	6.8	55 mg/kg detection limit exceeds the nww treatment standard.
Benzoic acid	U (13)	None	NA	NA	NA	
Benzly alcohol	U(55)	None	NA	NA	NA	
Butylbenzylphthalate	U (55)	UHC Treatment Standard	UHC	0.017	28	55 mg/kg detection limit exceeds the nww treatment standard.
Bis (2-chloroethoxy)methane	U (55)	UHC Treatment Standard	UHC	0.036	7.2	55 mg/kg detection limit exceeds the nww treatment standard.
Bis (2-chloroethyl)ether	U (55)	UHC Treatment Standard	UHC	0.033	6	55 mg/kg detection limit exceeds the nww treatment standard.
Bis (2-chloroisopropyl) ether	U (55)	UHC Treatment Standard	UHC	0.055	7.2	55 mg/kg detection limit exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Bis (2-ethylhexyl) phthalate	U(110)	UHC Treatment Standard	UHC	0.28	28	110 mg/kg concentration exceeds the nww treatment standard.
4-Bromophenyl-phenylether	U (55)	UHC Treatment Standard	UHC	0.055	15	55 mg/kg detection limit exceeds the nww treatment standard.
Carbozole (or Carbazole)	U (55)	None	NA	NA	NA	
Chrysene	U (55)	UHC Treatment Standard	UHC	0.059	3.4	55 mg/kg detection limit exceeds the nww treatment standard.
4-Chloroaniline (p-chloroaniline)	U (55)	UHC Treatment Standard	UHC	0.46	16	55 mg/kg detection limit exceeds the nww treatment standard.
4-Chloro-3-Methylphenol (p-chloro-m-cresol)	U (55)	UHC Treatment Standard	UHC	0.018	14	55 mg/kg detection limit exceeds the nww treatment standard.
2-Chloronaphthalene	U (55)	UHC Treatment Standard	UHC	0.055	5.6	55 mg/kg detection limit exceeds the nww treatment standard.
4-Chlorophenyl-phenylether	U (55)	None	NA	NA	NA	
2-Chlorophenol	U (55)	UHC Treatment Standard	UHC	0.044	5.7	55 mg/kg detection limit exceeds the nww treatment standard.
Dibenz(a,h)anthracene	U (55)	UHC Treatment Standard	UHC	0.055	8.2	55 mg/kg detection limit exceeds the nww treatment standard.
Dibenzofuran	U (130)	None	NA	NA	NA	
1,2-Dichlorobenzene (o-dichlorobenzene)	U (55)	UHC Treatment Standard	UHC	0.088	6	55 mg/kg concentration exceeds the nww treatment standard.
1,3-Dichlorobenzene (m-dichlorobenzene)	U (55)	UHC Treatment Standard	UHC	0.036	6	55 mg/kg concentration exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
1,4-Dichlorobenzene (p-dichlorobenzene)	U (55) U(0.1 mg/L) TCLP	7.5 (D027), UHC Treatment Standard	D027, UHC	0.09	6	0.1 mg/L does not exceed the characteristic limit. 55 mg/kg concentration exceeds the nww treatment standard.
3,3-Dichlorobenzidine (Dibenz (a,h) anthracene)	U (55)	UHC Treatment Standard	UHC	0.055	8.2	55 mg/kg detection limit exceeds the nww treatment standard.
2,4-Dichlorophenol	U (55)	UHC Treatment Standard	UHC	0.044	14	55 mg/kg detection limit exceeds the nww treatment standard.
Diethylphthalate	U (55)	UHC Treatment Standard	UHC	0.2	28	55 mg/kg detection limit exceeds the nww treatment standard.
2,4-Dimethylphenol	64	UHC Treatment Standard	UHC	0.036	14	64 mg/kg concentration does exceed the nww treatment standard.
Dimethylphthalate	U (55)	UHC Treatment Standard	UHC	0.047	28	55 mg/kg detection limit exceeds the nww treatment standard.
Di-n-butylphthalate	U (55)	UHC Treatment Standard	UHC	0.057	28	55 mg/kg concentration exceeds the nww treatment standard.
Di-n-octylphthalate	U (55)	UHC Treatment Standard	UHC	0.017	28	55 mg/kg detection limit exceeds the nww treatment standard.
4,6-Dinitro-2-methylphenol	U (270)	None	NA	NA	NA	
2,4-Dinitrophenol	U (270)	UHC Treatment Standard	UHC	0.12	160	270 mg/kg detection limit exceeds the nww treatment standard.
2,4-Dinitrotoluene	U (55) U(0.1mg/L) TCLP	0.13 (D030)UHC Treatment Standard	UHC	0.32	140	0.1 mg/L does not exceed the characteristic limit. 55 mg/kg detection limit does not exceed the nww treatment standard.
2,6-Dinitrotoluene	U (55)	UHC Treatment Standard	UHC	0.55	28	55 mg/kg detection limit exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Fluoranthene	U (55)	UHC Treatment Standard	UHC	0.068	3.4	55 mg/kg detection limit exceeds the nww treatment standard.
Fluorene	U (55)	UHC Treatment Standard	UHC	0.059	3.4	55 mg/kg detection limit exceeds the nww treatment standard.
Hexachlorobenzene	U (55) U(0.1mg/L) TCLP	0.13 (D032), UHC Treatment Standard	D032, UHC	0.055	10	0.1 mg/L does not exceed the characteristic limit. 55 mg/kg detection limit exceeds the nww treatment standard.
Hexachlorobutadiene (Hexachloro-1,3-butadiene	U(0.1mg/L) TCLP	0.5 (D033)UHC Treatment Standard	D033, UHC	0.055	5.6	0.1 mg/L does not exceed the characteristic limit. 55 mg/kg detection limit exceeds the nww treatment standard. There is no total data to use to determine if a UHC.
Hexachlorocyclopentadiene	U (55)	UHC Treatment Standard	UHC	0.057	2.4	55 mg/kg detection limit exceeds the nww treatment standard.
Hexachloroethane	U (55) U(0.1mg/L) TCLP	3.0 (D034) UHC Treatment Standard	UHC	0.055	30	0.1 mg/L does not exceed the characteristic limit. 55 mg/kg detection limit exceeds the nww treatment standard.
Indeno (1,2,3-cd) pyrene	U (55)	UHC Treatment Standard	UHC	0.0055	3.4	55 mg/kg detection limit exceeds the nww treatment standard.
Isophorone	U (55)	None	NA	NA	NA	
2-Methylnaphthalene	U (55)	None	NA	NA	NA	
2-Methylphenol (o-cresol)	J (54) U(0.1mg/L) TCLP	200 (D023) UHC treatment standard	D023, UHC	0.11	5.6	0.1 mg/L does not exceed the characteristic limit. 54 mg/kg concentration exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
4-Methylphenol (p-cresol)	U (53) U(0.1mg/L) TCLP	200 (D025) or UHC treatment standard	D025, UHC	0.77	5.6	0.1 mg/L does not exceed the characteristic limit. 53 mg/kg concentration exceeds the nww treatment standard.
Naphthalene	U (54)	UHC Treatment Standard	UHC	0.059	5.6	54 mg/kg concentration exceeds the nww treatment standard.
2-Nitroaniline (o-nitroaniline)	U (270)	UHC Treatment Standard	UHC	0.27	14	270 mg/kg detection limit exceeds the nww treatment standard.
3-Nitroaniline (m-nitroaniline)	U (270)	None	NA	NA	NA	
4-Nitroaniline (p-nitroaniline)	U (270)	UHC Treatment Standard	UHC	0.028	28	270 mg/kg detection limit exceeds the nww treatment standard.
Nitrobenzene	U (55) U(0.1mg/L) TCLP	2.0 (D036) or UHC Treatment Standard	D036 or UHC	0.068	14	0.1 mg/L does not exceed the characteristic limit. 55 mg/kg detection limit exceeds the nww treatment standard.
2-Nitrophenol (o-nitrophenol)	U (55)	UHC Treatment Standard	UHC	0.028	13	55 mg/kg detection limit exceeds the nww treatment standard.
4-Nitrophenol (p-nitrophenol)	U (270)	UHC Treatment Standard	UHC	0.12	29	270 mg/kg detection limit exceeds the nww treatment standard.
N-nitroso-dimethylamine	NA	UHC Treatment Standard	UHC	0.4	2.3	
N-nitroso-di-n-propylamine (Di-n-propylnitrosamine)	U (55)	UHC Treatment Standard	UHC	0.4	14	55 mg/kg detection limit exceeds the nww treatment standard.
N-nitrosodiphenylamine (Diphenylnitrosamine)	U (55)	UHC Treatment Standard	UHC	0.92	13	55 mg/kg detection limit exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Pentachlorophenol	U (270) U(0.5 mg/L) TCLP	100 (D037) UHC Treatment Standard	D037, UHC	0.089	7.4	0.5 mg/L does not exceed the characteristic limit. 270 mg/kg detection limit exceeds the nww treatment standard.
Phenanthrene	U (55)	UHC Treatment Standard	UHC	0.059	5.6	55 mg/kg concentration exceeds the nww treatment standard.
Phenol	14 J	UHC Treatment Standard	UHC	0.039	6.2	14 mg/kg concentration exceeds the nww treatment standard.
Pyrene	U (55)	UHC Treatment Standard	UHC	0.067	8.2	55 mg/kg detection limit exceeds the nww treatment standard.
Pyridine	U (55) U(0.1mg/L) TCLP	5.0 (D038) UHC Treatment Standard	D038, UHC	0.014	16	0.1 mg/L does not exceed the characteristic limit. 55 mg/kg detection limit exceeds the nww treatment standard.
1,2,4-Trichlorobenzene	U (55)	UHC Treatment Standard	UHC	0.055	19	55 mg/kg concentration exceeds the nww treatment standard.
2,4,5-Trichorophenol	U (270) U(0.5mg/L) TCLP	400 (D041), UHC Treatment Standard	D041, UHC	0.18	7.4	0.5 mg/L does not exceed the characteristic limit. 270 mg/kg detection limit exceeds the nww treatment standard.
2,4,6-Trichlorophenol	U (55) U(0.1mg/L) TCLP	2 (D042), UHC Treatment Standard	D042, UHC	0.035	7.4	55 mg/kg detection limit exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

INEEL Sand Filter VOC Analysis on Solid.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Acetone	U (0.014)	UHC Treatment Standard	UHC	0.28	160	
Benzene	U (0.014) U (0.005 mg/L) TCLP	0.5 (D018), UHC Treatment Standard	D018, UHC	0.14	10	
Bromodichloromethane	U (0.014)	UHC Treatment Standard	D005, UHC	0.35	15	
Bromoform (Tribromomethane)	U (0.014)	UHC Treatment Standard	UHC	0.63	15	
Bromomethane	U (0.014)	UHC Treatment Standard	UHC	0.11	15	
2-Butanone (MEK)	U (0.014) U (0.01 mg/L) TCLP	200 (D035), UHC Treatment Standard	D035 or UHC	0.28	36	
Carbon disulfide	U (0.014)	UHC Treatment Standard	UHC	3.8	4.8 mg/L	
Carbon tetrachloride	U (0.014) U (0.005 mg/L) TCLP	0.5 (D019), UHC Treatment Standard	UHC	0.057	6	
Chlorobenzene	U (0.014) U (0.005 mg/L) TCLP	100 (D021), UHC Treatment Standard	D021 or UHC	0.057	6	
Chloroethane	U (0.014)	UHC Treatment Standard	UHC	0.27	6	
Chloroform	U (0.014) U (0.005 mg/L) TCLP	6 (D022), UHC Treatment Standard	D022 or UHC	0.046	6	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
D = Dilution factor of 10000

INEEL Sand Filter VOC Analysis on Solid.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Chloromethane	U (0.014)	UHC Treatment Standard	UHC	0.19	30	
Dibromochloromethane (Chlorodibromomethane)	U (0.014)	UHC Treatment Standard	UHC	0.057	15	
1,1-Dichloroethane	U (0.014)	UHC Treatment Standard	UHC	0.059	6	
1,2-Dichloroethane	U (0.014) U (0.005 mg/L) TCLP	0.5 (D028), UHC Treatment Standard	D028 or UHC	0.21	6	
1,1-Dichloroethene	U (0.005 mg/L) TCLP	0.7 (D029), UHC Treatment Standard	D029 or UHC	0.025	6	No totals analysis available to determine if UHC
cis-1,2-Dichloroethene	U (0.014)	NA	NA	NA	NA	
trans-1,2-Dichloroethene	U (0.014)	UHC Treatment Standard	UHC	0.054	30	
1,2-Dichloropropane	U (0.014)	UHC Treatment Standard	UHC	0.85	18	
cis-1,3-Dichloropropene	U (0.014)	UHC Treatment Standard	UHC	0.036	18	
trans-1,3-Dichloropropene	U (0.014)	UHC Treatment Standard	D011, UHC	0.036	18	
Ethylbenzene	U (0.014)	1 (D010) UHC Treatment Standard	UHC	0.057	10	
2-Hexanone (Methyl n-butyl ketone)	U (0.014)	NA	NA	NA	NA	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
D = Dilution factor of 10000

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INEEL Sand Filter VOC Analysis on Solid.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
4-Methyl-2-pentanone (MIK)	U (0.014)	UHC Treatment Standard	UHC	0.14	33	
Methylene chloride	U (0.014)	UHC Treatment Standard	UHC	0.089	30	
Styrene	U (0.014)	NA	NA	NA	NA	
1,1,2,2-Tetrachloroethane	U (0.014)	UHC Treatment Standard	UHC	0.057	6	
Tetrachloroethene	J (0.002) J (0.001 mg/L) TCLP	0.7 (D039), UHC Treatment Standard	D039 or UHC	0.056	6	
Toluene	U (0.014)	UHC Treatment Standard	UHC	0.08	10	
1,1,1-Trichloroethane	U (0.014)	UHC Treatment Standard	UHC	0.054	6	
1,1,2-Trichloroethane	U (0.014)	UHC Treatment Standard	UHC	0.054	6	
Trichloroethene	U (0.014) U (0.005 mg/L) TCLP	None if listed	F001	0.054	6	
Vinyl chloride	U (0.014) U (0.005 mg/L) TCLP	0.2 (D043), UHC Treatment Standard	D043 or UHC	0.27	6	
Xylene (ortho)	U (0.014)	NA	NA	NA	NA	
Xylene (total meta and para)	U (0.014)	UHC Treatment Standard	UHC	0.32	30	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
D = Dilution factor of 10000

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INEEL Sand Filter Inorganic Analysis on Solid.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Antimony		UHC Treatment Standard	UHC	1.9	1.15 mg/L TCLP	
Arsenic	25 U (0.0194 mg/L) TCLP	5.0 (D004), UHC Treatment Standard	D004, UHC	1.4	5.0 mg/L TCLP	TCLP result is below both the characteristic limit as well as nonwastewater (nnw) treatment standard limit.
Barium	310 (0.1385 mg/L) TCLP	100 (D005), UHC Treatment Standard	D005, UHC	1.2	21 mg/L TCLP	TCLP result is below both the characteristic limit as well as nonwastewater (nnw) treatment standard limit.
Beryllium		UHC Treatment Standard	UHC	0.82	1.22 mg/L TCLP	
Cadmium	121 (0.3853 mg/L) TCLP	1.0 (D006), UHC	UHC	0.69	0.11 mg/L	TCLP result is below the characteristic limit; however, it exceeds the nnw treatment standard limit.
Chromium	1985 (0.177 mg/L) TCLP	5 (D007), UHC Treatment Standard	D007, UHC	2.77	0.60 mg/L	TCLP result is below both the characteristic limit as well as nonwastewater (nnw) treatment standard limit.
Lead	1349 (0.2196 mg/L) TCLP	5.0 (D008) UHC Treatment Standard	D008, UHC	0.69	0.75 mg/L TCLP	TCLP result is below both the characteristic limit as well as nonwastewater (nnw) treatment standard limit.
Mercury	1930 (0.00733 mg/L) TCLP	0.2 (D009), UHC Treatment Standard	D009, UHC	0.15	0.025 mg/L TCLP	TCLP result is below both the characteristic limit as well as nonwastewater (nnw) treatment standard limit.
Nickel		UHC Treatment Standard	UHC	3.98	11 mg/L TCLP	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
B = Reported value is > to instrument detection limit but < contract required detection limit.
N = Spiked Sample
E = Estimate value due to interference.

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INEEL Sand Filter Inorganic Analysis on Solid.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Selenium	5.36 U (0.0402 mg/L) TCLP	1 (D010) UHC Treatment Standard	D010	0.82	5.7 mg/L TCLP	TCLP result is below both the characteristic limit as well as nonwastewater (nnw) treatment standard limit.
Silver	247 U (0.0045 mg/L) TCLP	5 (D011), UHC Treatment Standard	D011, UHC	0.43	0.14 mg/L TCLP	TCLP result is below both the characteristic limit as well as nonwastewater (nnw) treatment standard limit.
Thallium		UHC Treatment Standard	UHC	1.4	0.2 mg/L TCLP	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
B = Reported value is > to instrument detection limit but < contract required detection limit.
N = Spiked Sample
E = Estimate value due to interference.

L/Project/INEELV-Tank/INEELSan

INEEL Sand Filter PCB Analysis on solids

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable TSCA/RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Aroclor-1016	U (14)		None	NA	NA	
Aroclor-1221	U (270)	NA	NA	NA	NA	
Aroclor-1232	U (14)	NA	NA	NA	NA	
Aroclor-1242	U (14)	NA	NA	NA	NA	
Aroclor-1248	U (14)	NA	NA	NA	NA	
Aroclor-1254	U (14)	NA	NA	NA	NA	
Aroclor-1260	290	NA	NA	NA	NA	
Total Concentration	290	50 mg/kg for TSCA, UHC Treatment Standard for RCRA	None	0.1	10	This waste is regulated under TSCA and it may be subject to the UHC treatment standard level. Therefore, this waste must be incinerated prior to disposal for purposes of PCBs.

U = Not Detected (Detection limit in parenthesis).
P = > 25% difference in detected concentration between two GC columns; lower value reported.

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